



**Whitepaper-18.05.06**





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## What is Likecoin LIKES

Likecoin LIKES is a digital ERC20 based token on the Ethereum blockchain. This provides individuals and organizations with a robust and decentralized method of exchanging value while using a familiar social sign of appreciation.

We believe in a free world economy. The ultimate goal of the LIKES community is to offer modern financial services and the possibility to create a basic income to anybody with access to internet and a connected (mobile) device.

The team is convinced that the Ethereum blockchain is the ultimate platform to serve this.

It has several advantages over other blockchain platforms that will be helpful to reach our final goal.

The power of social media will be leveraged to push crypto under social media users.

We believe in a financial system where everyone can take advantage of blockchain technology, driven by the LIKES community.

The innovation of blockchain is a cryptographically secured global ledger.

Each and every LIKES will be registered on the blockchain that is completely transparent and auditable, no more bot Likes, only real verified LIKES on the Ethereum blockchain!!!

The total supply of tokens is based on today's market share of Facebook with 2,006,000,000 active users. Each social media user familiar with Likes should be able to use LIKES as a content rewarding mechanism.

Blocked Reserve 51% of tokens are time locked for custody purpose and may be used for future developments.





# Likecoin LIKES

**Token name:** Likecoin

**Ticker Symbol:** LIKES

**Decimals:** 8

**Total supply:** 2,006,000,000

**Smart Contract:** 0x518f70613e04640e296e205d65EF04152b6c4d0B

**Wallet:** Likewallet.eth

**Wallet address:** 0x68B464F208E0f9F4Bd1C9D0a48A49b5B1BFeecaD

**1 LIKES:** reward for 100 clicks in any social media, for liking or sharing or forwarding.

**Community supply:** 501,500,000

**Emission rate Exchange price:** €0.10EUR

**Pre-Sales:** with discount, unless sold out

## Use of LIKES:

- Utility token to pay for services on the Tyso platform.
- Content reward mechanism (any social media)
- Buy or sell goods or services on Tyso platform.
- Store or transfer value without middlemen
- Trade on exchanges

**Storage:** in any ERC20 compatible wallet

<https://www.ledgerwallet.com/>

<https://trezor.io/>

<https://www.myetherwallet.com/>

<https://vintage.myetherwallet.com/>





Likes

LIKES

### Trade opportunities and Exchanges

We selected several cryptocurrency Exchanges with our LIKES for trading, once accepted for trade purposes.

Total number of coins for trading is limited to 500,000,000

### Warning:

Don't invest money that you can't afford to lose.  
In every business risk is involved.  
Always spread your investment.

We reserve our rights to refuse investments,  
in case of doubts.

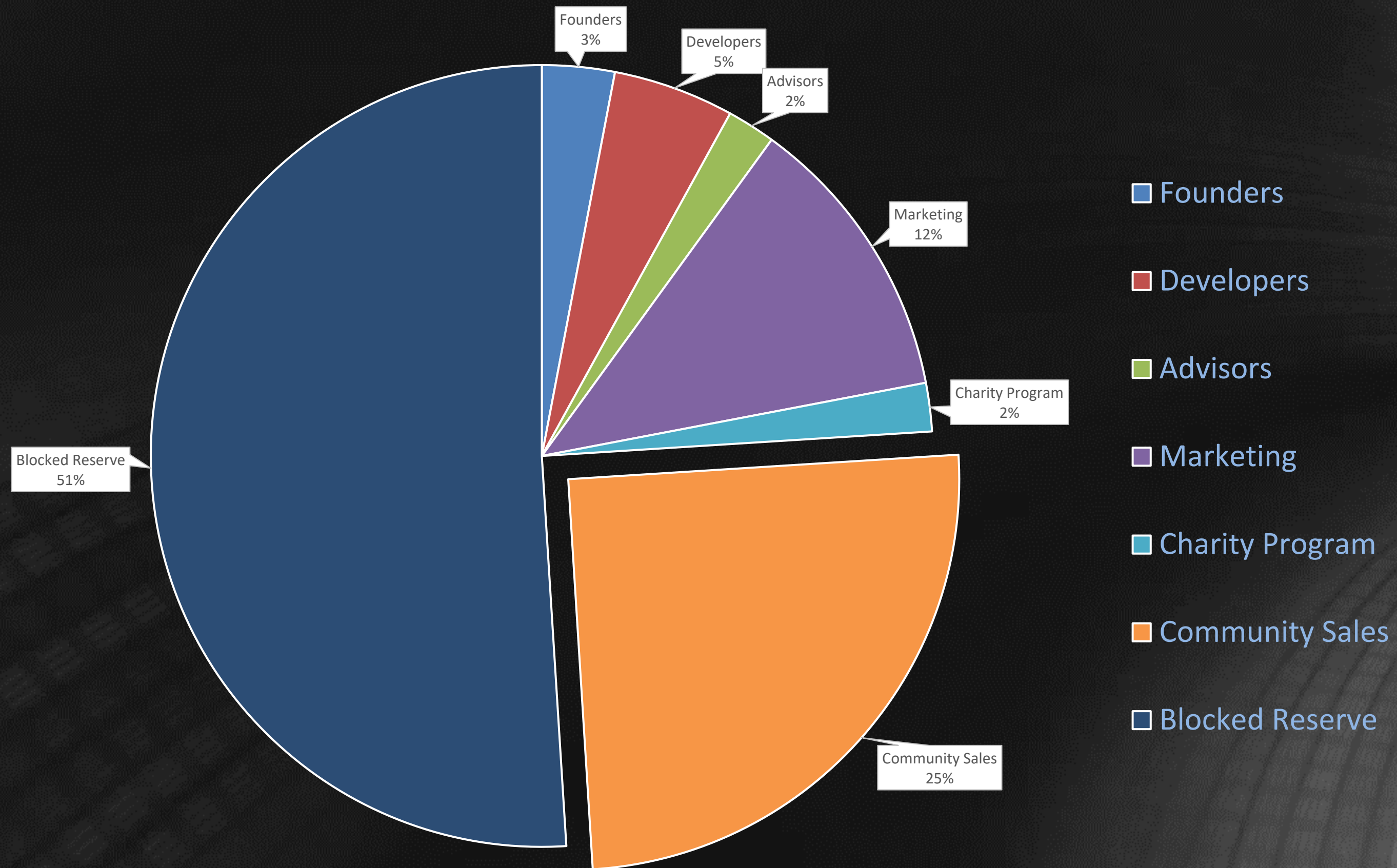






Likes

## Distribution of LIKES





## Why LIKES should become mainstream

LIKES is a digital token on the Ethereum blockchain. The symbol is LIKES, and this is familiar with the worldwide likes that people give or receive if they like content as pictures, music, video, blogs, vlogs, messages, news, art, or whatsoever expressed and shared in all social media communication.

Worldwide use of social media channels like Facebook, Twitter, Instagram, Google, YouTube, LinkedIn, Telegram, WhatsApp, Snapchat, Skype, Vimeo and a lot more, are well known by anyone, but sometimes it's fake or anonymous and no one receives real value for the effort involved.

Our goal is creating value for users by giving likes or receiving likes that are connected to cryptocurrency LIKES and represents real value in Ether or Bitcoin as well as fiat currency like USD, GBP, EUR and more.

Once LIKES becomes mainstream on the blockchain, anyone can earn or pay with LIKES for services or goods, and the holders of LIKES can trade on cryptocurrency exchanges.

LIKES is created for the community.

## LIKES in the Blockchain





## LIKES on the Ethereum Blockchain

Our Main Partner for LIKES allows the use of software for streaming high quality media assets and data. Faster streaming over internet connection without limitation on bandwidth, in a secure protected environment to prevent hacking and illegal use. This new streaming method (xHS) allows distribution of 3x more data than legacy streaming, and allows upto 5 times faster streaming. Only 1 container carrier needed for all devices. Unified single player framework (xSPF) for all data and all devices.

Useful for all kind of industries, especially for government, healthcare, military, banking, insurance, security, telco, broadcast, film distribution, business networks, education, social networks and more. Serious cost savings on storage, CPU use, energy consumption and transcoding jobs.

Blockchain technology is missing high speed, and huge energy is needed for operations. Blockchain is based on a decentralised system, controlled by the community, but also can be used for centralised operations.

**By combining new Tyso technologies, the blockchain will become much faster, more secure and safe for data distribution in all areas, heavy reduction on energy use, transaction costs and storage costs.**

## Blockchain Technology

Fast and secure data transfer

Secure decentralized currency transfer.





## Why Tyso Technology

### “Stream all media assets & data”:

- New streaming architecture (xHS) for all media assets and data.
- Streams 3x faster than legacy models.
- Streaming highest quality over lowest bandwidth.
- Supporting ABR.
- Storage in Cloud only 1 time, instead of 120 times.
- Cross platform reaches all devices and all operating systems.
- New single player (xSPF player) for all content, both online and off line.
- Low CPU usage, low energy consumption
- New Shell protection in 3 or 4 layers against hacking and illegal use.
- Lowest TCO, due to low CPU usage in Cloud and in mobile, low energy consumption in Cloud, no re-encoding, no re-compression, only 1-time storage in Cloud, single container distribution, independent on hardware upgrades. Green technology, future proof.
- Distribution all data and media asset with same technology.
- Quality as produced. No loss on frames and bits. High video profiles.
- Bandwidth independent. Low bandwidth needed for highest quality.
- Media-assets: All data, Video, Audio, Picture, Documents, Music.

## Tyso Network





# Content distribution Summary

By 2018 Video and Audio content delivery via internet will surpass 90% of all data traffic. Demand for access to such content creates several challenges for infrastructure, broadcasting and IT companies.

These challenges are primarily due to Bandwidth and Storage (physical constraints) and Content Protection (intellectual constraint)

Research by the University of Massachusetts shows that buffering issues are the number 1 cause of viewers abandonment. Limited bandwidth and degraded content are the main cause of low quality distribution and the reason for loss of viewers and revenue.

Content creators do not really have the ability to show original recorded formats in studio quality and have relatively little control over the protection of their copyrighted work.

Cable- and Mobile operators and Television started to provide 4K content to clients who can afford premium packages with higher bandwidth, but they also have costs for maintaining content and supporting various codecs, devices and bandwidths. Adaptive HTTP streaming is an accepted alternative, but this has no ability for playback of studio quality content.

**The only content agnostic streaming platform for all data, all OS, all devices, beyond 4K.**

**We created the world's only content agnostic Streaming Platform that currently streams beyond 4K content to multiple platforms.**

**Utilizing available bandwidth more efficiently, and Protecting copyrighted media content.**

**This platform does not require major changes to existing Servers. No major changes to Infrastructure.**

**Fast, Safe and Secure data distribution.**



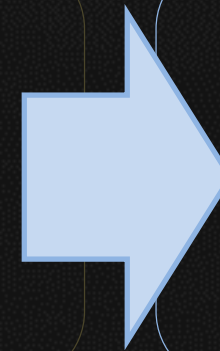


# Likes

## Pain points & Solutions

### Facing problems in media distribution

- ❑ Video and Audio Content is growing day by day
- ❑ Quality of content increased from SD to UHD
- ❑ Studio quality is not yet available in networks

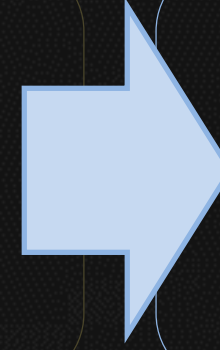


### New xHS™ Streaming protocol

- ✓ 3 times more throughput in same pipe
- ✓ Bandwidth independent, codec agnostic
- ✓ No loss on frames and bits: Lossless
- ✓ WYUiWYG: What You Upload is What you Get

### Problems in data traffic

- ❑ Data streams growing fast. Network capacity small
- ❑ Peak traffic causes struggle to reach all end-users
- ❑ I-o-T applications needs connection to communicate

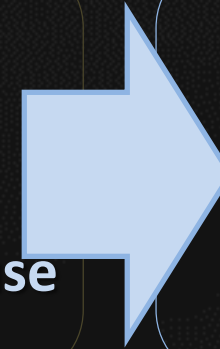


### New xSPF™ Playing and Storage

- ✓ Plays any codec, any data, on any device
- ✓ No re-encoding. No re-compression
- ✓ Storage 1x origin server, 1x sync server
- ✓ Not 120+ different container carrier

### Weak protection

- ❑ Encryption and SSL connection is not enough
- ❑ Almost every day attack, hacking, stolen data, illegal use

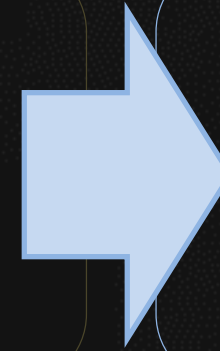


### New Protection

- ✓ Industry standard AES 256-bit encryption
- ✓ Added built-in multi-layer DRM
- ✓ 4 keys needed for access to decryption
- ✓ Content protected and Privacy protected

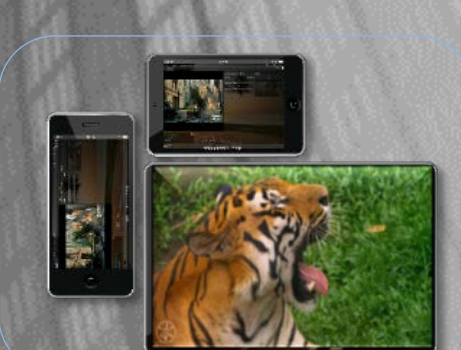
### User satisfaction

- ❑ Buffering delay cause irritation and abandonment
- ❑ Degraded content and consequent low quality
- ❑ User wants better quality of delivered content



### User experience

- ✓ End-to-End solution, easy to integrate
- ✓ 2-way interactive communication
- ✓ All connectivity in 1 place
- ✓ CPU usage reduced upto 70% : save battery







## New Technology can solve this problems

- ❑ We are able to send 3 times more data through the same internet pipe, which solves the data traffic limitation and poor quality limitation.
- ❑ We use shell protection system with multi-layer DRM and 3 different asset keys in different place For decryption the 4th key is necessary to get access to the content assets.
- ❑ Our single player technology can play all types of content and codecs, and can reach all devices.
- ❑ We only need 1 container carrier instead of 120+ to reach all devices and operating systems.
- ❑ We deliver Lossless all content in quality up to 8K within smaller bandwidth.





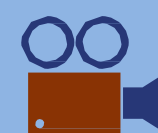
Likes

What to deliver

## What we are capable to deliver



High Speed of super fast distribution



Universal player for all data and all media content, both online and offline



Highest quality in Low bandwidth Regions



We need only 1 container carrier instead of 120+ to reach all devices and all OS



Super protected content, with 4 independent layers and keys. Almost impossible to hack



Much lower costs on energy, transcoding jobs, distribution costs and storage costs



Overall huge cost savings ! Green technology



## Why LIKES is important

**LIKES** is a utility token, created for the community. In our opinion a special token such as the **LIKES**, presenting a well-known symbol as used in all social media, now can interact with technology services that can improve the social media use and also presents real value. Therefore, it can be used to pay for services and goods, but also to earn by giving a like to others or sell products.

**LIKES** partnered with **Tysoworld** and uses the new technology that created the world's only content agnostic streaming platform, currently streaming beyond 4K to multiple platforms, utilizing bandwidth more efficiently and protecting content. This platform requires no major changes to existing servers and infrastructure.

The **LIKES** can be used to reward content creators within our platform as well outside our platform.

We aggregated the **LIKES** and planned to keep a coin reserve in custody for the end users to be able to push our cryptocurrency mainstream under social media users.

Our goal is to make the usage of our crypto **LIKES** just as easy as Liking & Sharing and get Liked.

## LIKES distributed over the Blockchain





## Partners

### **TYSO Entertainment Limited**

Tyso is our main partner for development, creating technologies for higher data quality, faster distribution, cost friendly and heavy protected, besides all the possibilities of the Blockchain.

### **Worldcore Bank**

Worldcore is our partner for payment solutions and banking services, as well in private as in business, with fiat currency like USD, EUR, GBP, but also crypto currency BTC, ETH and LIKES.

### **Trezor**

Trezor is a partner for a cold wallet system, to store currency outside your computer. Also, recovery of data in case of lost.

### **Ledger**

Ledger is a partner for another cold wallet system, and distributor for their hardware wallet.





## Team

Henk J.J. Leferink  
 Gunther Nell  
 Marco J.M. Leferink  
 Benjamin Samson  
 Rockers Team  
 Ionut Aurel Cristea  
 Konny Light  
 Dr. John Stolk  
 Kristian Aartun  
 Knut Dyremyhr  
 Sam Cooper  
 Gregory Neubacher  
 Gert-Paul van 't Hoff

In our team we have multiple developers, legal specialists, marketing professionals, executives and advisors.

## Team

Jesus Arruza Gomez  
 Tineke Huizenga  
 Domingo Tellez  
 Alfredo Meca Bernal  
 Paul Voss  
 Andrew McKinnon  
 Roger Burnett  
 James Naylor  
 Nigel Tatlock  
 Rob van den Berg  
 Olivier Dobbelaere  
 Felix Prieto  
 Waqar Arshad  
 Daniel Rawles  
 Jonathan Arriola  
 Srinivas Karunji





## Applications

### Use Case for Data streaming

The Use Case for data streaming to solve peak traffic problems by streaming more data, faster and safer over available internet connection, especially for Telco's and Banks. For different use cases we planned to set up PoC.

### Business Network

The Network for Business Use in any market is based on technology that improved the quality of content, the safety of the network, the privacy of online communications, the protection against identity theft and protection of copyrighted content. Tremendous reduction on energy use and storage costs. Reducing CO2

### Community Platform

Community interactive communication in a Blockchain connected platform with cross media sharing. Priorities are sharing information, communication between users, contribution to the platform by creating content and copyrighted work.

### Social Media Network

For Entertainment a new complete private entertainment network is created, including features as mentioned in the demo model and user manual. This new social media network is planned to be integrated within the Blockchain technology with advantages for the blockchain as well as the network itself.

### Payment Solutions

For buying services, selling goods, rewarding contributions and creative contents the LIKES can be used as payment solution besides regular payment in fiat currency.

### Mobile Integration.

Plans are in progression, part of development is ready. Release in near future.

### Special Use Cases.

For governments, military, healthcare and other use, we intend to test some cases, and release in future.

### Marketplace

Plans for a connected marketplace are made and will be released in future.





**Trade warning:**

Don't invest money that you can't afford to lose.  
In every business risk is involved.  
Always spread your investment.

We reserve our rights to refuse investments,  
in case of doubts.

We are not allowed to communicate on the top exchanges as  
it is their policy to allow us to communicate only few hours  
before the listing. It's not our rule, we are simply linked by an  
NDA until further notice.

The listing process will close, when we have finished  
processing all payments, KYC checks and distributed  
community sales of the LIKES, so that everybody has his  
LIKES before any trading starts.

It will be announced as soon as we are authorized to  
communicate on the top exchanges.





## Operations in the Blockchain

LIKES is created for the community as an ERC20 compatible token on the Ethereum Blockchain. LIKES is a utility coin.

We have developed the new technology since 2012 and make an API available from which we want to build a custom application for Beta users.

We planned to release an Alpha version early to show the minimum viable product to investors.

Our technology is not open source, but we tested improvements since 2012 on own dedicated servers to prevent hacking.

There is currently no competition in the streaming quality we deliver. Only offline on Blu-ray same bitrate in audio and video is available. Combined technology will increase speed.

To be clear our backend is centralized until the state of technology in the blockchain space is able to deliver same quality from a decentralized back-end.

Our speed of transport over internet is much higher than all legacy methods for streaming.

We combine our technology in the blockchain to increase speed, quality, safety and security while we reduce significant costs.

We target content creators that want to deliver their content directly to end users from movie studios to user generated content.

We are able to deliver quality only known before in offline space, not in online streaming delivery methods. DRM is included in our streaming delivery architecture and make available the API with features to build a custom application.

A kind of growth hack is planned to provide an html widget to all users that want to get rewarded for any online contents outside our platform.

Also, a useful universal wallet system is planned to integrate.

After successful beta release and healthy user adoption of the technology we planned to make the API available for developers to implement the features in their own applications.



**Social Media and community contacts**

For any contribution to the community network you can discuss all in Social Media channels, or reach us at our company address.

**Facebook:** [https://www.facebook.com/Likecoin\\_tysoworld-1497606270337779/](https://www.facebook.com/Likecoin_tysoworld-1497606270337779/)

**Twitter:** <https://twitter.com/likecoin1>

**YouTube:** <https://youtu.be/R1GMEbAqtl>

**LinkedIn:** [www.linkedin.com/in/hendrikus-j-j-leferink-6a89bb157](http://www.linkedin.com/in/hendrikus-j-j-leferink-6a89bb157)

**Telegram:** <https://t.me/likecoincc>

**Instagram:** <https://www.instagram.com/likecoin.cc/>

**Bitcoin Talk:** <https://bitcointalk.org/index.php>

More communication channels will follow.

**Contact Us:**

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## Regulations

Due to the volatility of cryptocurrency, a lot of discussion is caused in the media, although anyone has a positive view on developments regarding the Blockchain technology.

Some governments, countries, states, or regulatory bodies or entities already have regulations or intend to prepare in this regard.

Some countries banned cryptocurrency to protect their own interests.

LIKES is only a utility token and cannot be considered being a security of any kind. LIKES do not offer equity ownership or voting rights or rights on payments out of profit from the company whatsoever.

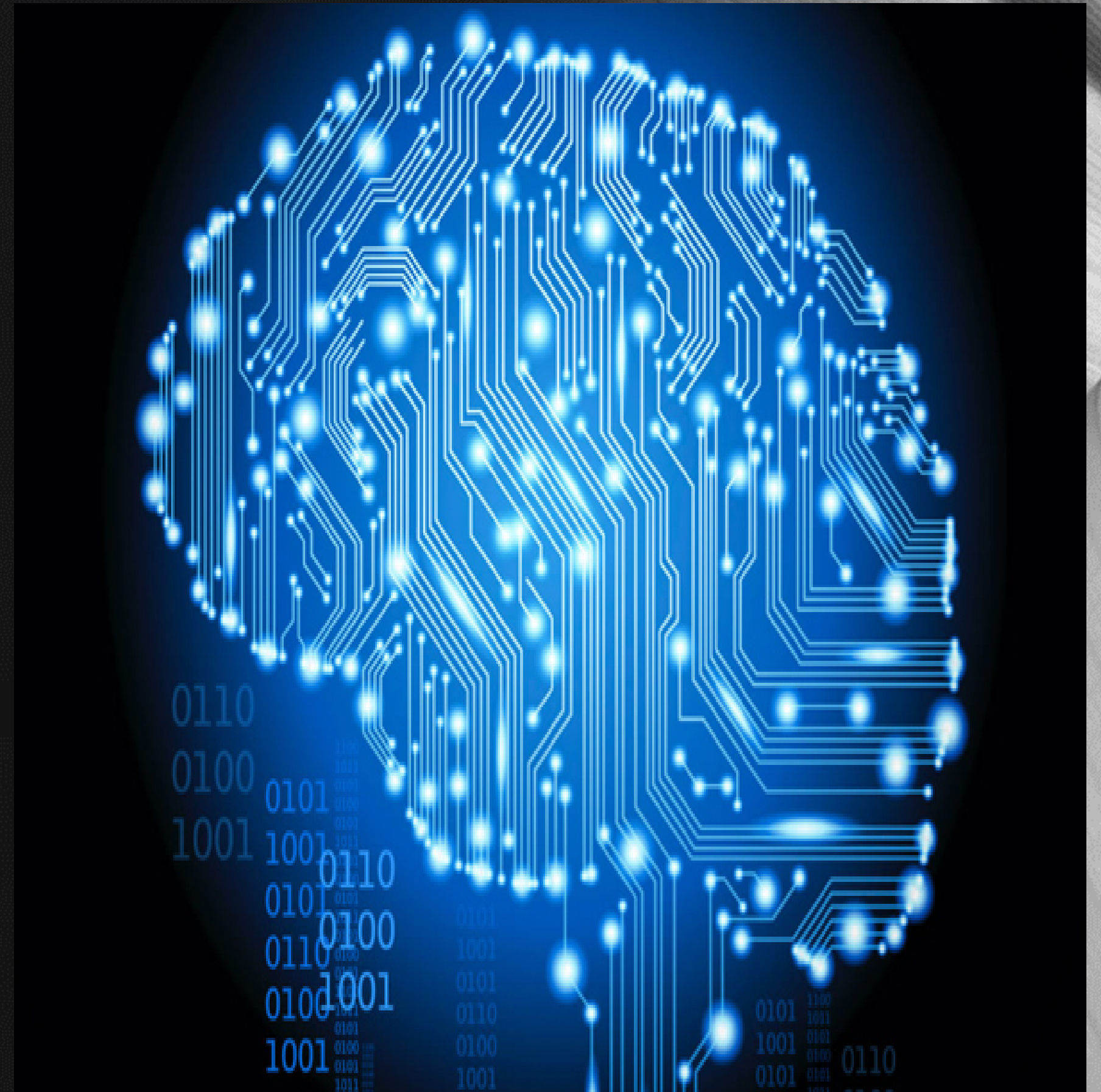
LIKES and the LIKES economy intend to operate in accordance with the laws of any jurisdiction where applicable or required.

LIKES do not provide assurance to the completeness of included information in the whitepaper, website or any documentation in this regard.

LIKES is intended for the use as utility token within the LIKES community for blockchain based technologies and software use, and is not considered as legal tender or securities.

No promises of future value or performance, including no guarantee that LIKES will hold any particular value or inherent value.

LIKES is not meant for speculation or investment.  
Purchase of LIKES is completely at own risks and is not refundable or reversible.





- 2010** ..... Start Tyso Corporation by 3 founders
- 2011** ..... Development team extended
- 2012** ..... Basic solutions for pain points in Entertainment
  
- 2013** ..... Registered Tyso Entertainment Limited
- 2014** ..... Testing beta release Tyso Vi-core
- 2015** ..... Ongoing development special products
- 2016** ..... Testing PoC Video and Satellite connected edges
  
- 2017-Q1** ..... Demo model Social Media app
- 2017-Q2** ..... Study Blockchain technology
- 2017-Q3** ..... Experiments in crypto currency
- 2017-Q4** ..... Testing mobile applications
  
- 2018-Q1** ..... Tysoworld partnering with LIKES
- 2018-Q2** ..... Study use cases on the blockchain
- 2018-Q3** ..... Release Business Network on ETH Blockchain
- 2018-Q4** ..... Release community platform for data streaming
  
- 2019-Q1** ..... Release Social Media Network
- 2019-Q2** ..... Release Payment system for buy and sell services
- 2019-Q3** ..... Release Mobile integrated solutions
- 2019-Q4** ..... Special use in different market fields





## Technology Platform for Business and Social

Our technology is almost ready for Business Networks and Social Media Networks for sharing and publishing all data and media content in public or private.

No longer worries on quality, protection, speed and costs.

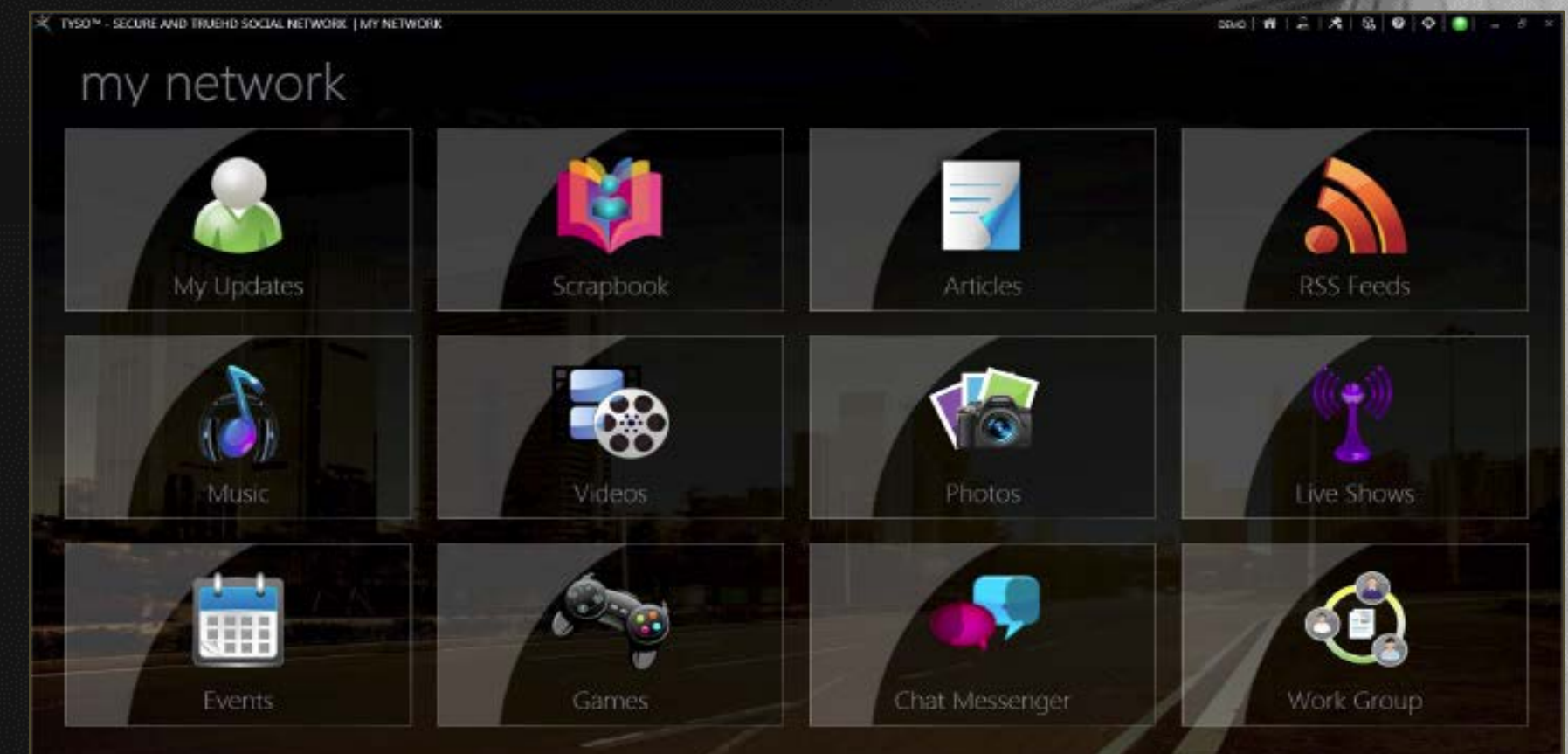
Parts for Live Social, Live Shows, Chat Messenger and Work Group are not yet completed.

Parts for Video broadcast, Music broadcast, Public Videos, Photos, Channels, Pages, Articles, RSS Feeds, Events and Games are ready for most OS and devices, but release will start after final testing.

Impression you find here: <https://youtu.be/zEDkr4KCBPQ>

Developments for mobile and optimisation is ongoing.

In mean time integration development in the Blockchain is processing.











### Disclaimer

This whitepaper is carefully prepared for informational use only.  
Contributors to the LIKES ecosystem are contributing at their own risk.  
No statement in this whitepaper is meant to be seen as promotional act or as an advice to participate or contribute in LIKES.

Implementation of technologies or applications or future obligations are dependent on risks and factors outside the control of Tyso Entertainment Limited and officers herein, or involved persons or third-party companies.

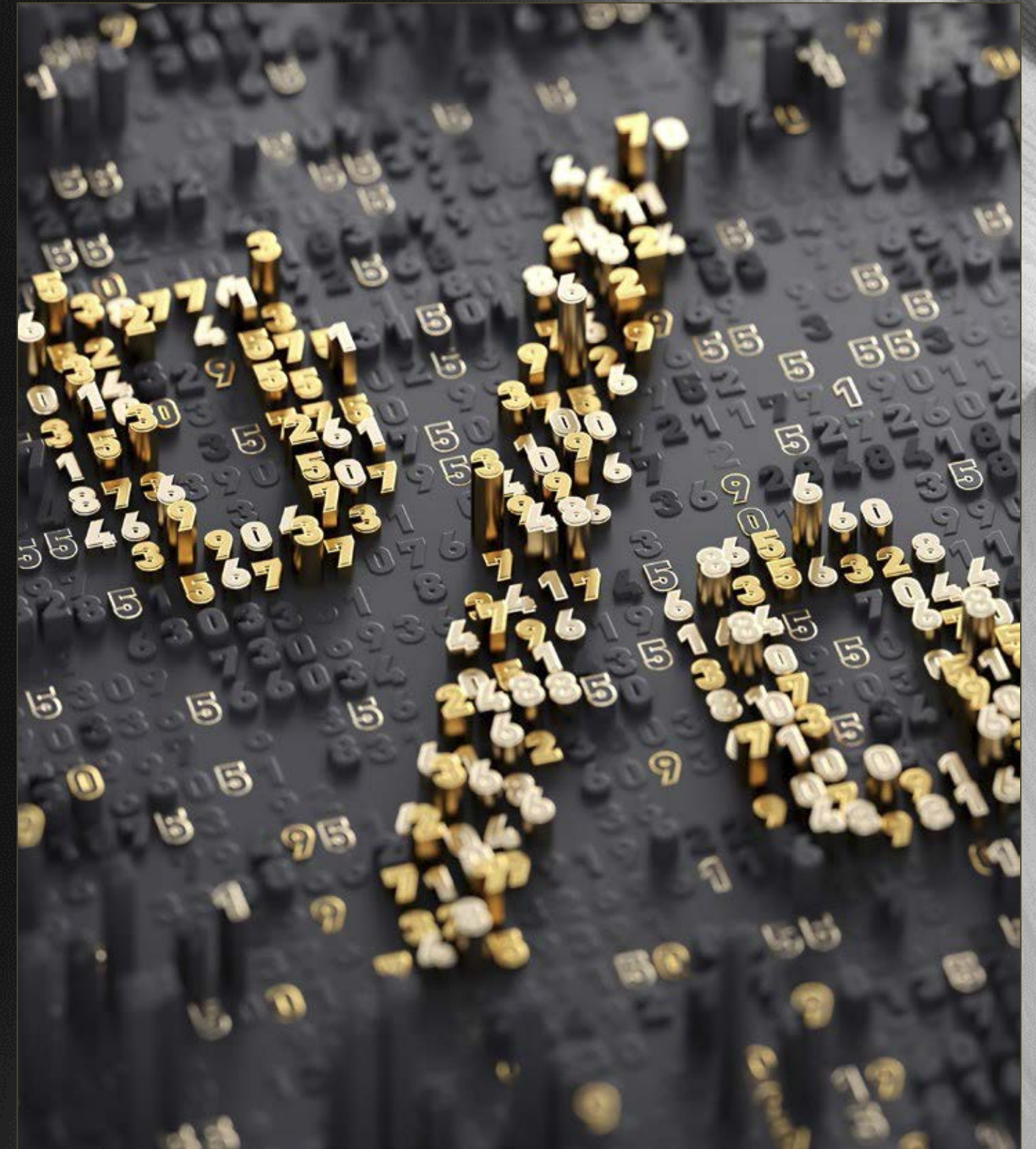
This whitepaper is non-binding on any person in or outside the company.  
Information herein cannot be incorporated into any contract or any legal obligation.

Outside risks including regulatory risks, adoption of the technology mentioned in this whitepaper, continued use of the Ethereum Blockchain, contributor participation, or financial risks cannot be foreseen.

By purchasing LIKES, the buyer acknowledges that buyer has sufficient expertise and is able to judge or evaluate this whitepaper, including additional information.  
Restrictions may depend on the residence of the buyer and involves risks, including tax risks and regulatory risks.  
LIKES should not be considered as a security of any kind, but only as a utility token.

No other rights than the use of this utility token as described in this whitepaper can be claimed upon purchasing LIKES under the restrictions as mentioned.

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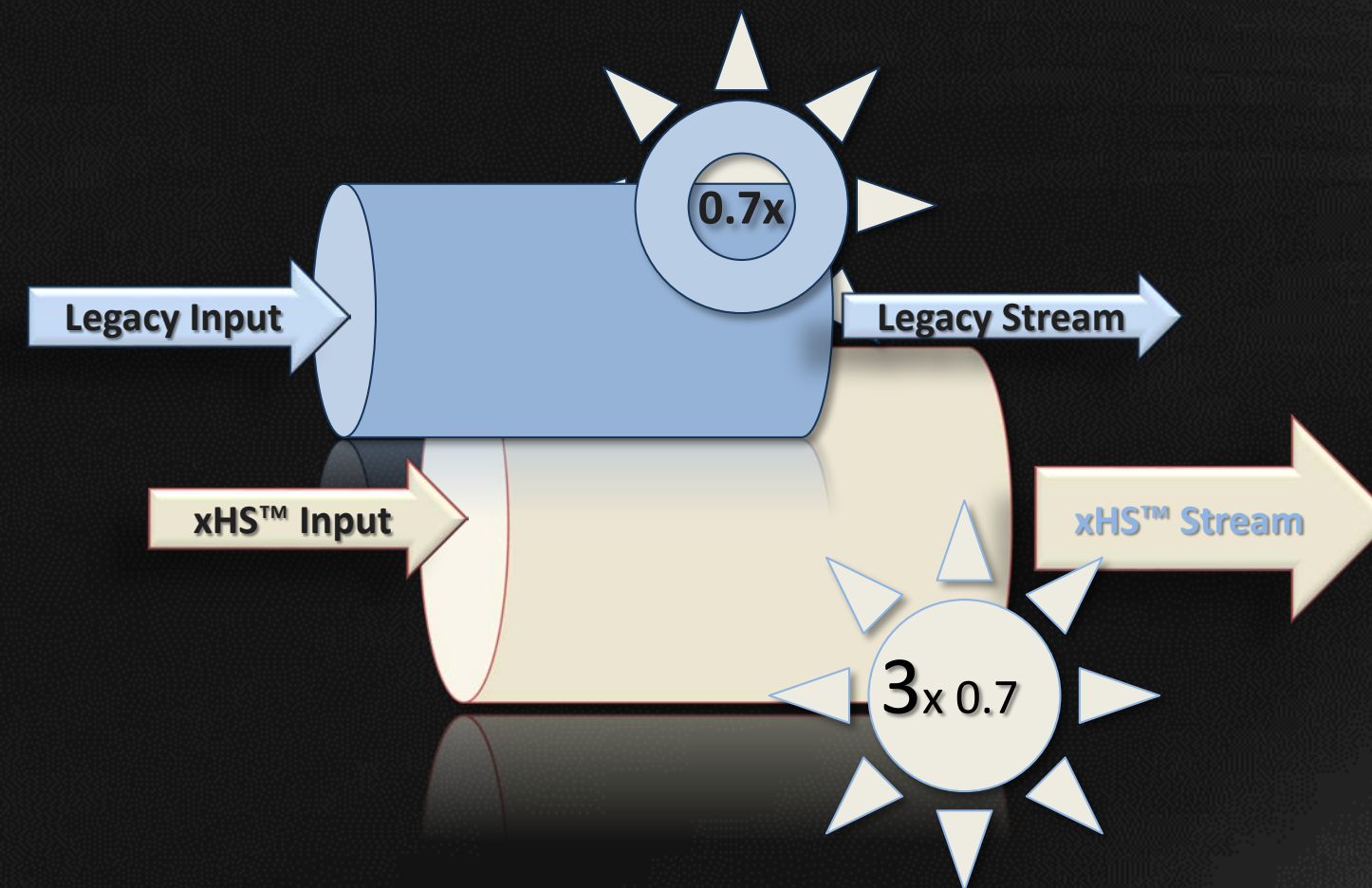
Our comprehensive suite of offerings has applicability in every market, and affects every industry globally.

## Bandwidth: 4 Mbps

Screen Area: SD (480p), HD (720p)  
Resolution (bitrate): SD (2 Mbps)  
HD (7 Mbps)  
Video 1 Min: SD =  $2 \times 60 = 120$  Mbps / Min  
HD =  $7 \times 60 = 420$  Mbps / Min

Potential:  $2 \times 120 = 240$  Mbps / Min  
Legacy stream: 120-180 Mbps / Min

xHS™ output:  $(2 \times 240) = 480$  Mbps / Min



## Bandwidth: 10 Mbps

Screen Area: Full HD (1080p)  
Resolution (bitrate): THD (5 Mbps)  
FHD (15 Mbps)  
Video 1 Min: THD =  $5 \times 60 = 300$  Mbps / Min  
FHD =  $15 \times 60 = 900$  Mbps / Min

Potential:  $2 \times 300 = 600$  Mbps / Min  
Legacy stream: 400-500 Mbps / Min

xHS™ output:  $(2 \times 600) = 1200$  Mbps / Min

We deliver the highest quality streamed and mirrored data content to any device, at any bitrate and for any market in a secure environment, Providing extensive notification and analytics, a quick way for publishers to get their content safe & ultra-fast online .



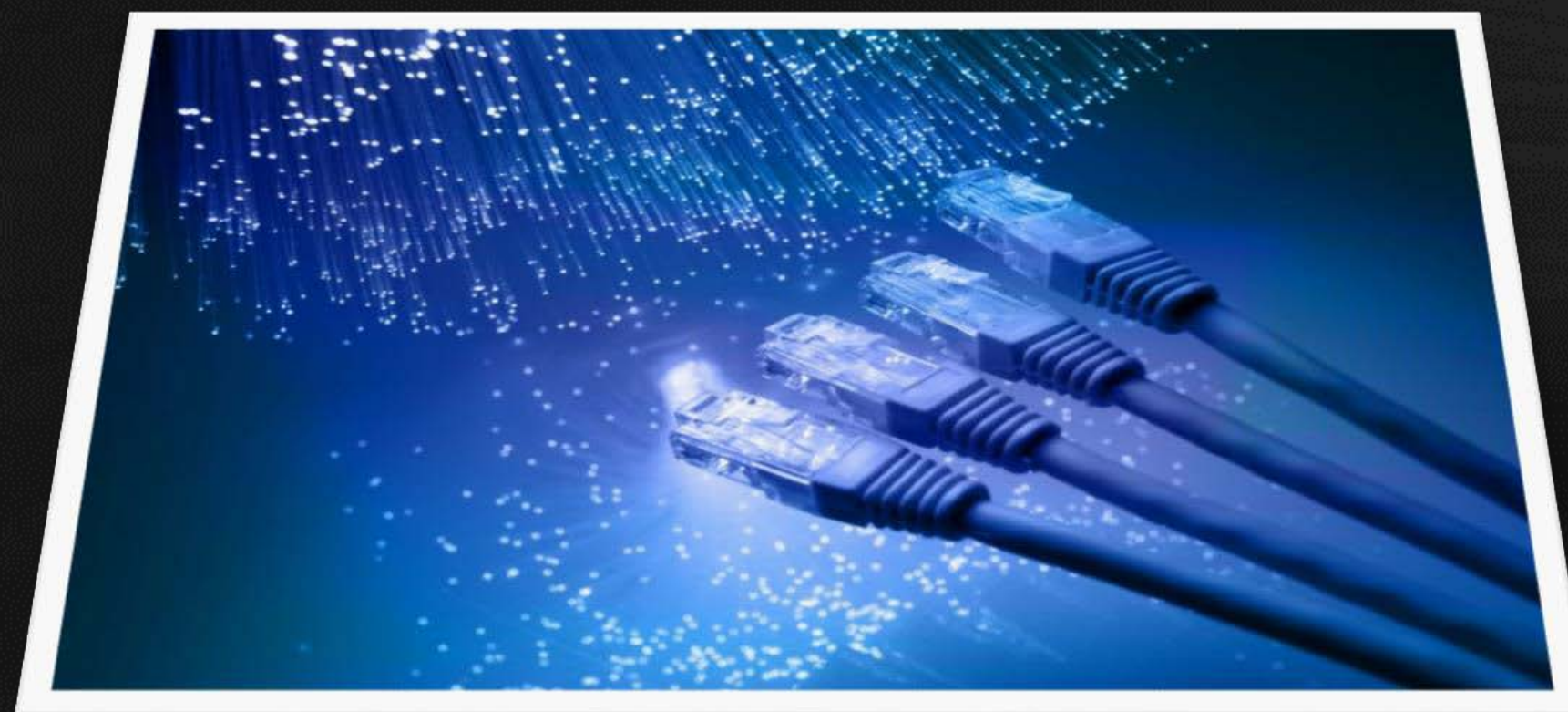


Likes

LIKES

**All industries struggle with DATAFLOW, especially the peak traffic causes big problems.**

Now and even more in the near future, due to every day growing number of data feeds.



The limitations of current internet connection makes it almost impossible to reach anyone, with secured high quality content, especially in regions with small bandwidth.

**Those area's we have advantage in every city in the world.**





**Likes**

## Technology Advantage

- **Throughput (xHS™) is 3x more than Legacy streaming**
  - We stream original Studio productions as created.
  - No changes.
  - 0% loss on quality
- **One single container carrier for all types of data content**
  - We reach all devices and all operating systems. (xHS™)
  - No re-encoding
  - No re-compression
  - Huge cost saving and time saving
- **All codecs supported in One Single Player (xSPF™)**
  - We play all existing and own codecs and future codecs
- **We protect content with multi-layer DRM**
  - We use Industry Standard AES-256 bit or AES-512 bit encryption
  - 3 access keys on different place for different content parts
  - For decryption the 4<sup>th</sup> key is needed to reach the content



99,999% Secured

No hacking

No illegal downloads

No illegal use

**The end-user is given the best experience. Your media content will shine**

**We integrate all existing technologies and use parts that have value for your operations.**





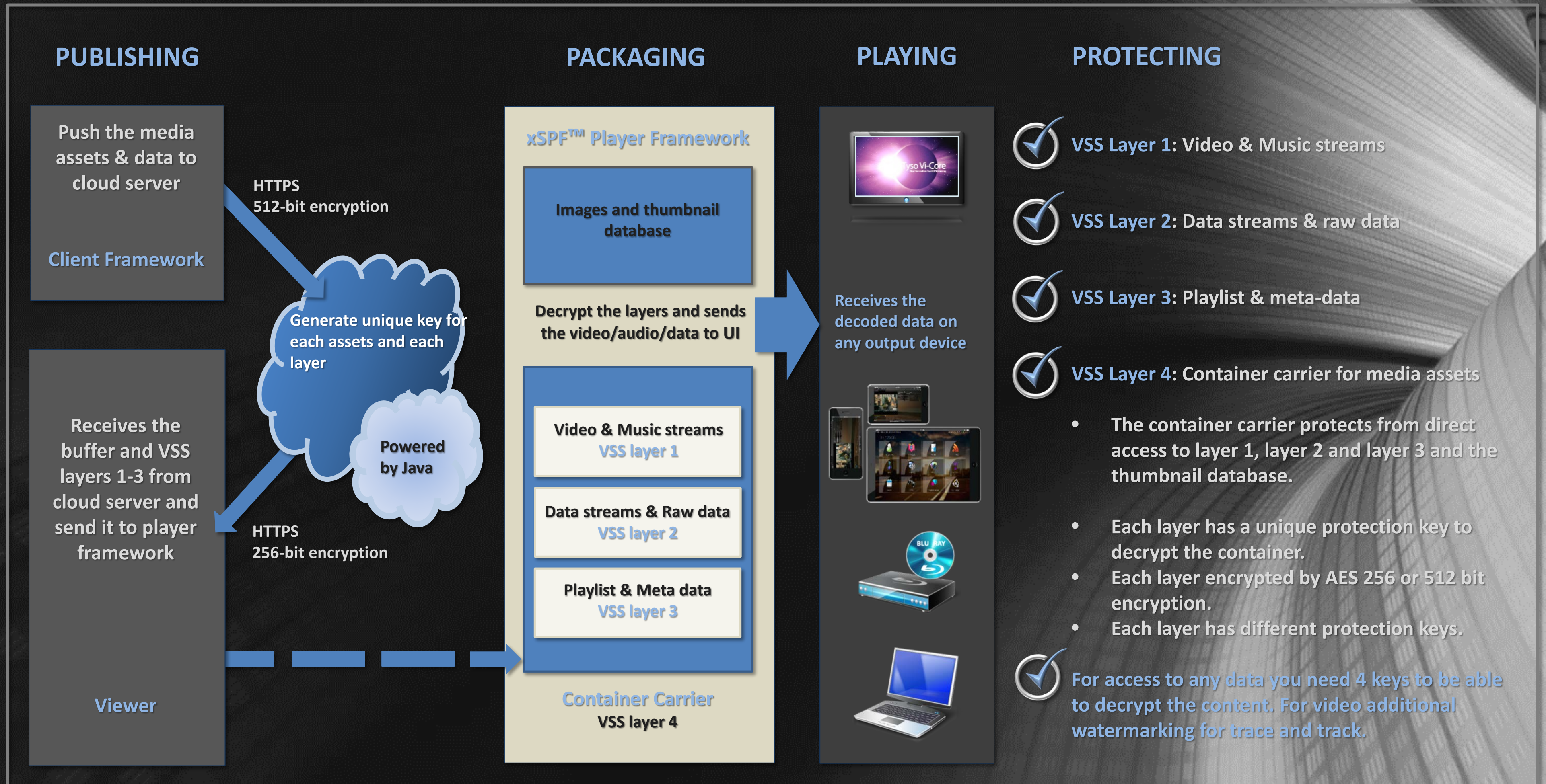
Likes

LIKES

Besides that, protection of data streams is weak and not sufficient to prevent theft, attack, hacking and illegal use.





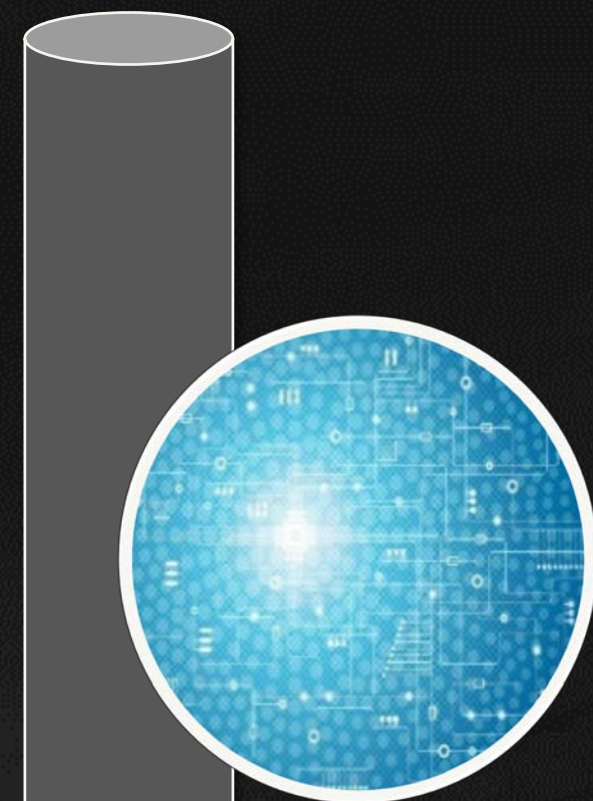




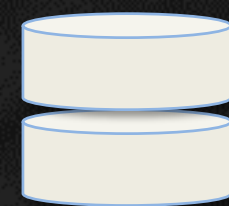


Likes

# Data Storage



Storage  
Legacy



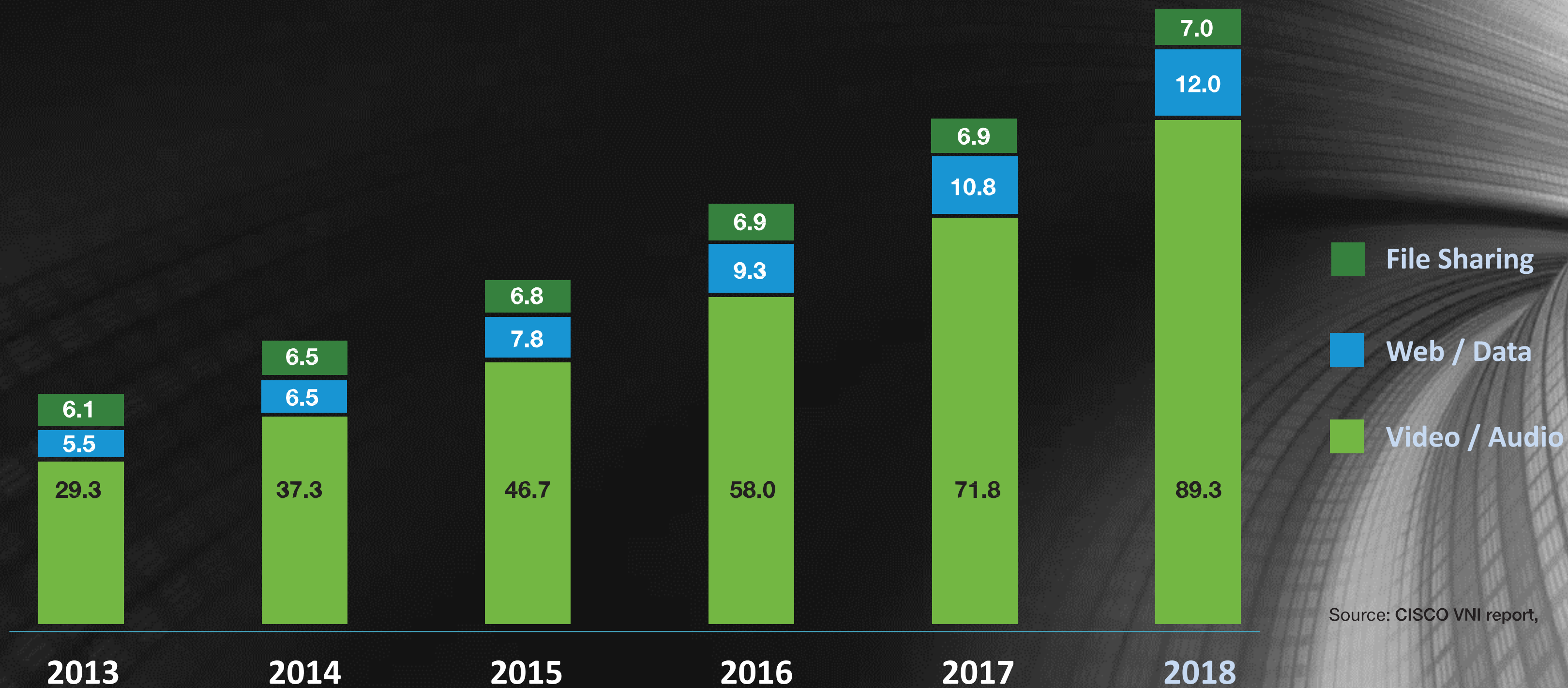
Tyso Storage  
xHS™ protocol

- ▶ WE STREAM MORE DATA LOSSLESS WITHIN LOWER BANDWIDTH
- ▶ WE REMOVED THE CONSTRAINTS FROM EXTREME GROWTH IN VIDEO & AUDIO CONSUMPTION
- ▶ WE ARE READY FOR CONNECTING INTERNET OF THINGS DEVICES
- ▶ LEGACY PROTOCOL STORES 120 TIMES THE DATA CARRIER
- ▶ OUR xHS™ PROTOCOL\* STORES 1 TIME THE DATA CARRIER ON ORIGIN & 1 TIME ON SYNC SERVER
- ▶ WE STREAM ALL DATA & MEDIA ASSETS IN SAME xHS™ PROTOCOL
- ▶ OUR MULTI-LAYER DRM PROTECTION\* PREVENTS 99,999% HACKING OR ILLEGAL USE
- ▶ OUR STREAMING SOLUTION NEEDS NO RE-ENCODING OR RE-COMPRESSSION
- ▶ WE DELIVER HIGHEST THROUGHPUT, LOWEST PEAK TRAFFIC, LOWEST CPU POWER NEEDED.
- ▶ WE DELIVER HD STUDIO QUALITY UPTO 8K WITH 0% LOSS ON FRAMES & PIXELS





By 2018 Video and Audio will generate 89% of Consumer Internet Data Traffic



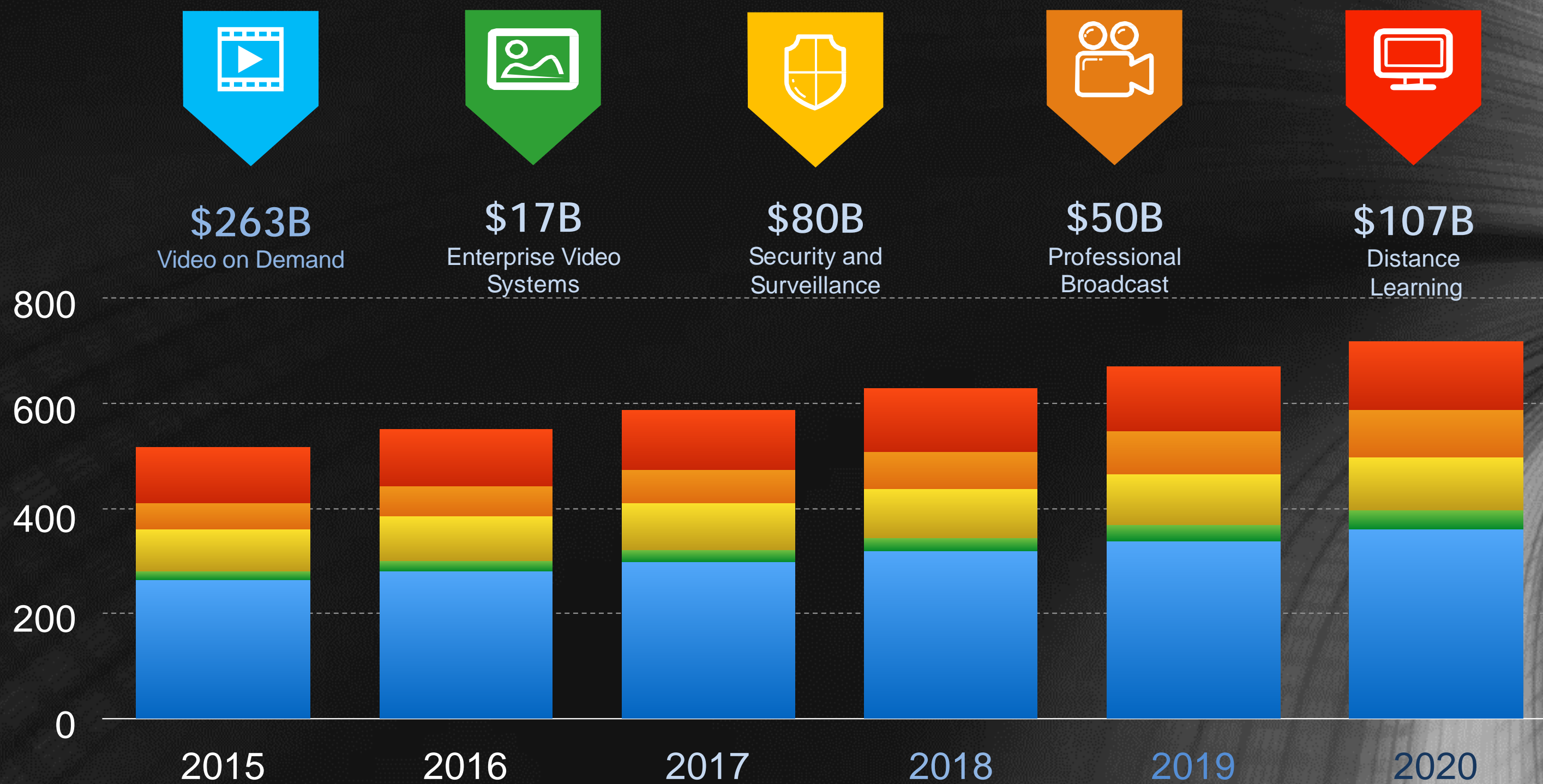




Likes

## Opportunity Landscape

Technology can significantly impact a number of high growth industries







# Likes

## LIKES & Markets



- ▶ Providing a fully interactive media platform
- ▶ Deliver pixel perfect reproduction for a variety of industries and a plethora of applications

- ✓ Sports
- ✓ Entertainment
- ✓ Media
- ✓ Data
- ✓ Gaming
- ✓ Chatting
- ✓ Video Conference
- ✓ Phone call

- ✓ Business
- ✓ Security
- ✓ Healthcare
- ✓ Banking
- ✓ Insurance
- ✓ Government
- ✓ Military
- ✓ e-Commerce





## Table of contents Part 3: Technical Details

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## Table of contents Part 4

Additional information  
based on feedback  
and Proof of Work  
  
will follow soon





**Likes**

# New Streaming Protocol and Player Framework



**Codec Agnostic – xHS plays well with everyone and everything**



**No frame and data loss**



**Built-in security at every layer of the end-to-end system**



**Built-in interactive element for digital media delivery**



loading ....

**Low Latency and No re-buffering**



**No playlist design required**



**Optimised Dynamic Up/Down Grades**



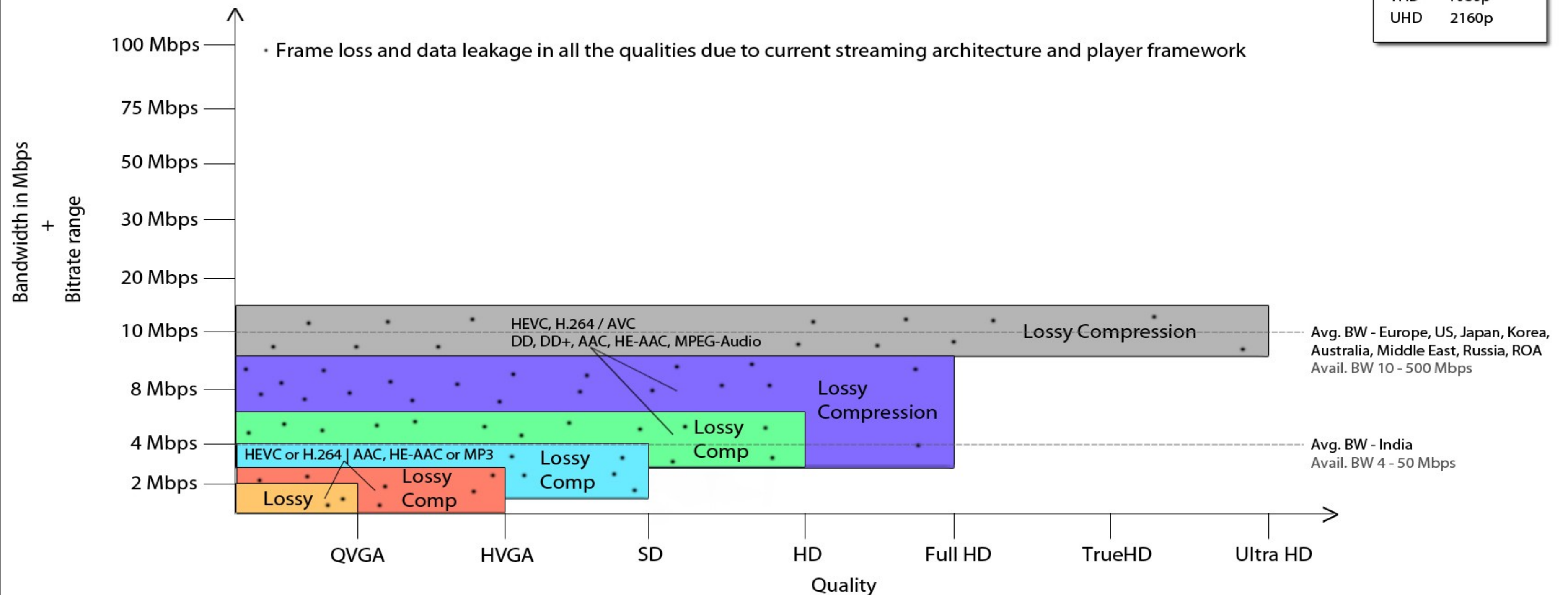
## Legacy Architecture – Video Bandwidth Graph

### Frame Loss and Data Leakage

Video Codecs  
HEVC, H264 / AVC

Audio Codecs  
DD, DD+, AAC, HE-AAC,  
MPEG-Audio or MP3

Quality	
QVGA	240p
HVGA	360p
SD	480p
HD	720p
FHD	1080p
THD	1080p
UHD	2160p







Likes

# New Video Streaming

## xHS Stream Architecture – Video Bandwidth Graph

### Video Codecs

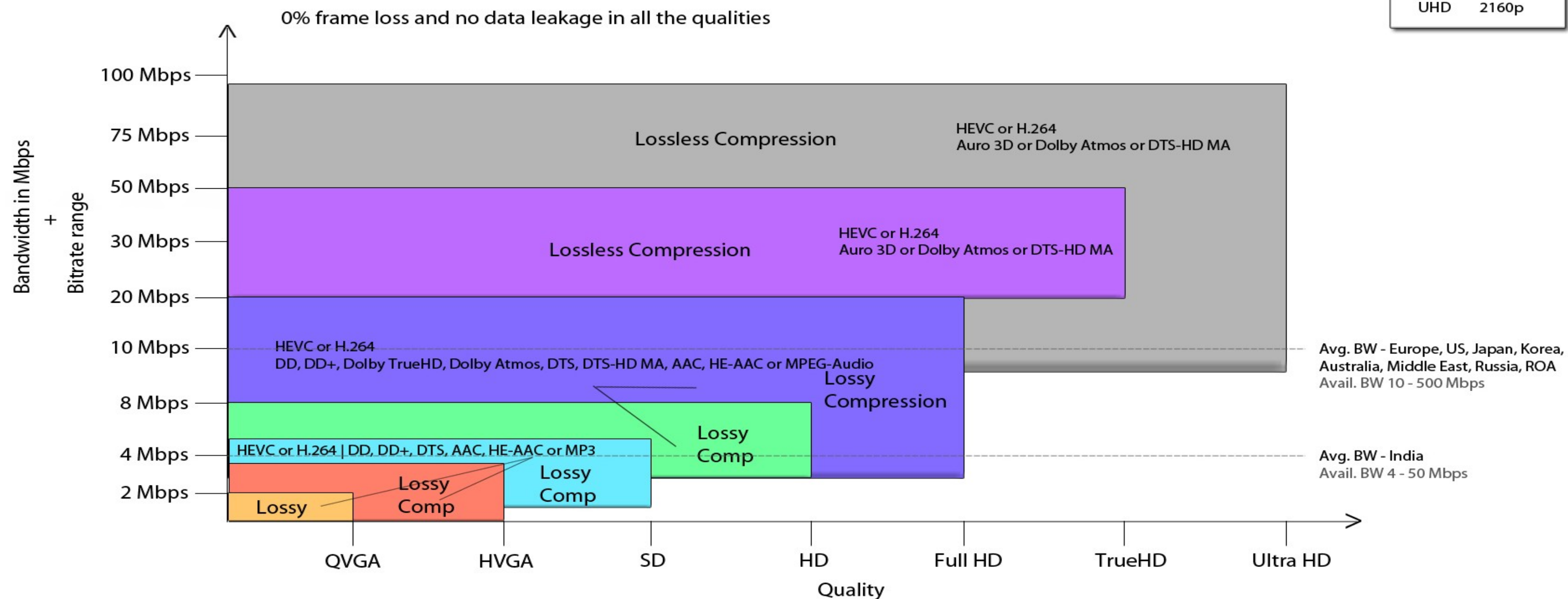
HEVC, H264 / AVC, MPEG-2, VC-1

### Audio Codecs

DD, DD+, Dolby TrueHD, ATMOS, DTS, DTS-HD, DTS-HD MA, AAC, HE-AAC, MPEG-Audio, LPCM, PCM


### Quality

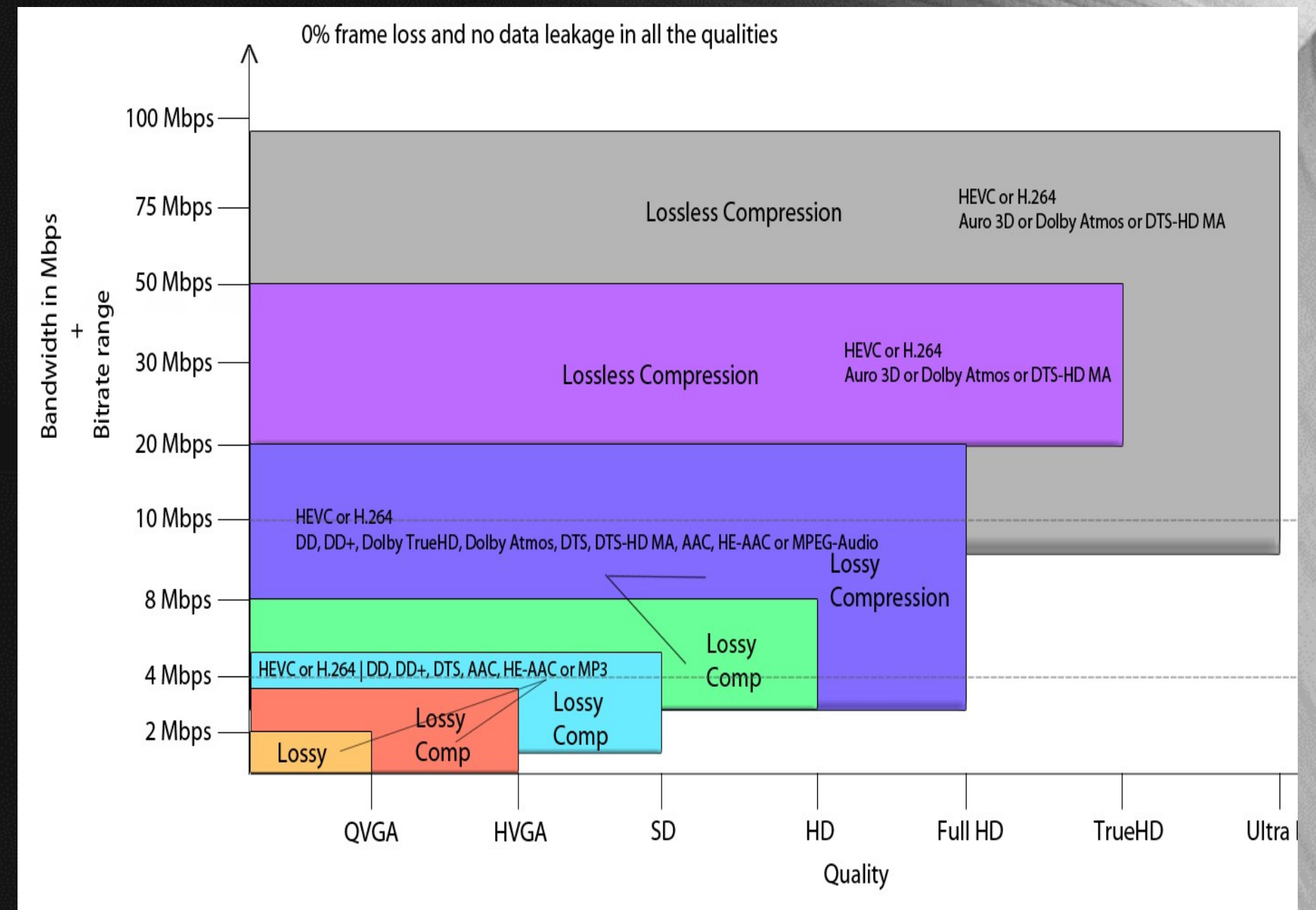
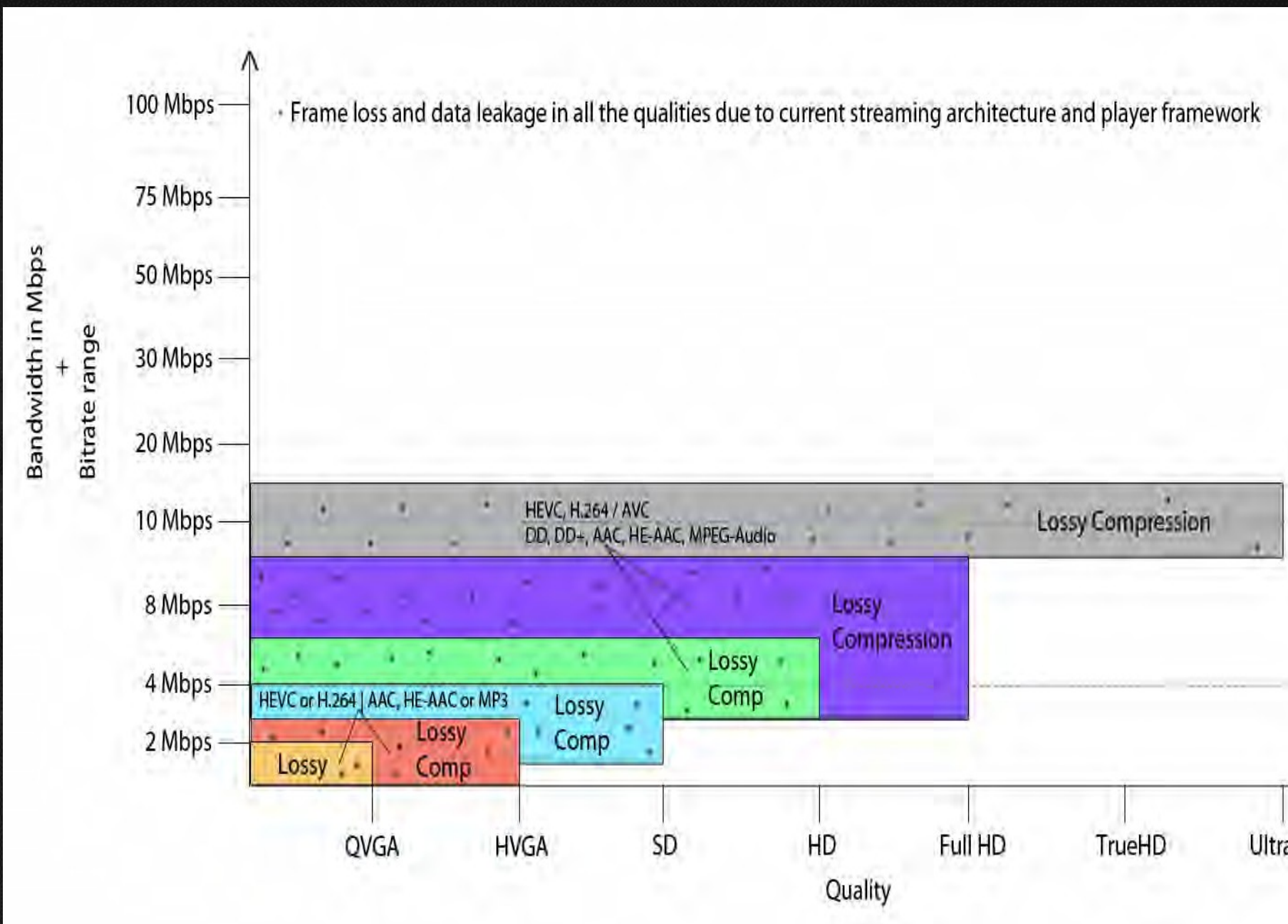
QVGA	240p
HVGA	360p
SD	480p
HD	720p
FHD	1080p
THD	1080p
UHD	2160p





**Container (Brightcove, JWplatform, Ooyala)**  
**Player Framework (OS, Flash, Silverlight, HTML5)**  
**Legacy Architecture (HDS, HLS, RTMP, DASH)**

 **Container (TYSO Technology)**  
**Powerful Player Framework (xSPFT™)**  
**New Streaming Delivery (xHS™)**





## Removed Constraints UHD Streaming

▶ **Bandwidth Availability**

▶ **Lossy compression**

▶ **Platform Frame loss**

▶ **Operating System Player Framework dependencies**

▶ **Multiple format/codecs copies of original video**

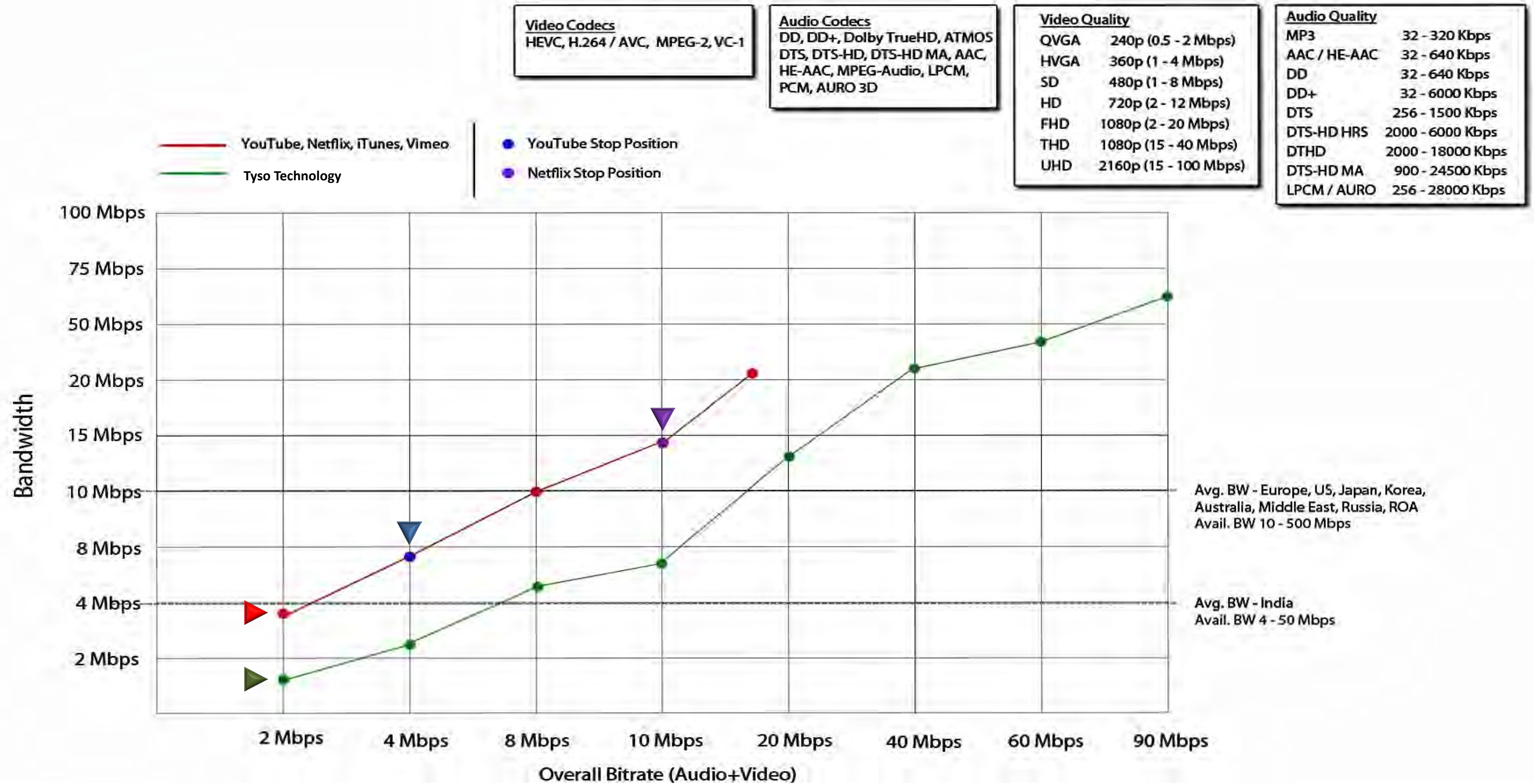
▶ **Each content has to be copied at least 120 times (Netflix, Youtube...) to be able to play in every format**





Likes

# Quality Comparison in available bandwidth







Likes

# Video Bitrate Comparison

Very simplistically, "bitrate" is the amount of information each frame

The higher the bitrate, the more information the video contains, which makes for higher video quality and thus a larger file size

Similarly, a video file that is compressed at 3000 Kbps will look better than same file compressed at 1000 Kbps

## MICROSOFT SILVERLIGHT

Up to 10 Mbps

Silverlight for Windows Phone (supports up to 10 Mbps)

10

## ADOBE FLASH

Up to 6 Mbps and max up to 10 Mbps (Android Player FW can support up to this level)

6

## APPLE QUICKTIME

Up to 15 Mbps (QT for iOS can support up to this level)

15

## Our Technology

Greater than 500 Mbps



500





Potential to deliver Studio production content, HD, 2K, 4K, 8K and beyond



450 Audio channel for richer sound (Dolby Atmos has only 64 channel support)



Player Framework support for every major platform (Windows, Linux, MacOS, iOS, Android)



Managed security to ensure creative content is copy protected against illegal use and theft.



Only 1 copy of original content stored in clouds versus 120 at the moment (Netflix, YouTube or others) to be able to play in different formats and devices



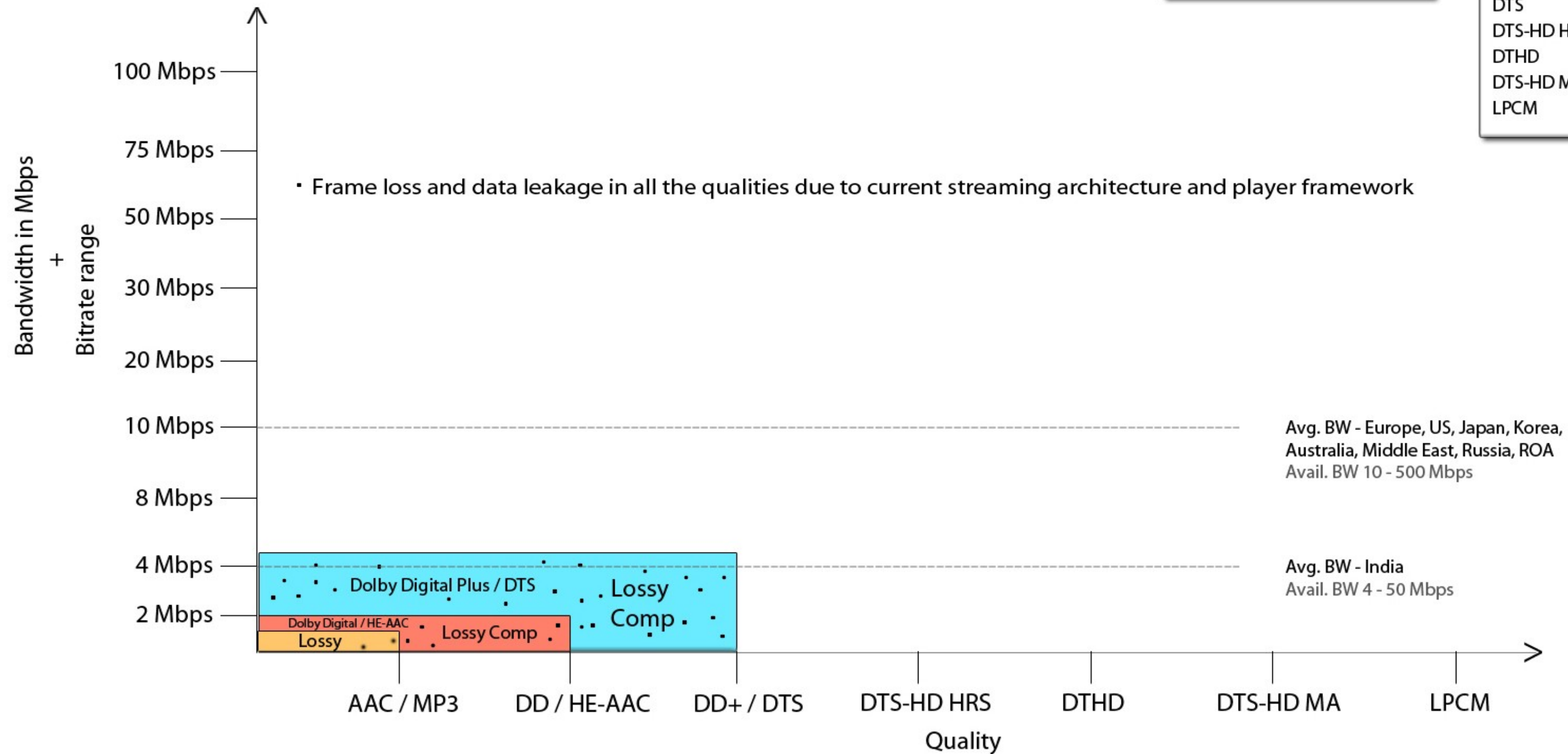
## Legacy Streaming Architecture – Audio Bandwidth Graph

### Audio Codecs

DD, DD+, Dolby TrueHD, ATMOS  
DTS, DTS-HD, DTS-HD MA, AAC,  
HE-AAC, MPEG-Audio, LPCM,  
AURO 3D

### Quality

MP3	32 - 320 Kbps
AAC / HE-AAC	32 - 640 Kbps
DD	32 - 640 Kbps
DD+	32 - 6000 Kbps
DTS	256 - 1500 Kbps
DTS-HD HRS	2000 - 6000 Kbps
DTHD	2000 - 18000 Kbps
DTS-HD MA	900 - 24500 Kbps
LPCM	256 - 28000 Kbps



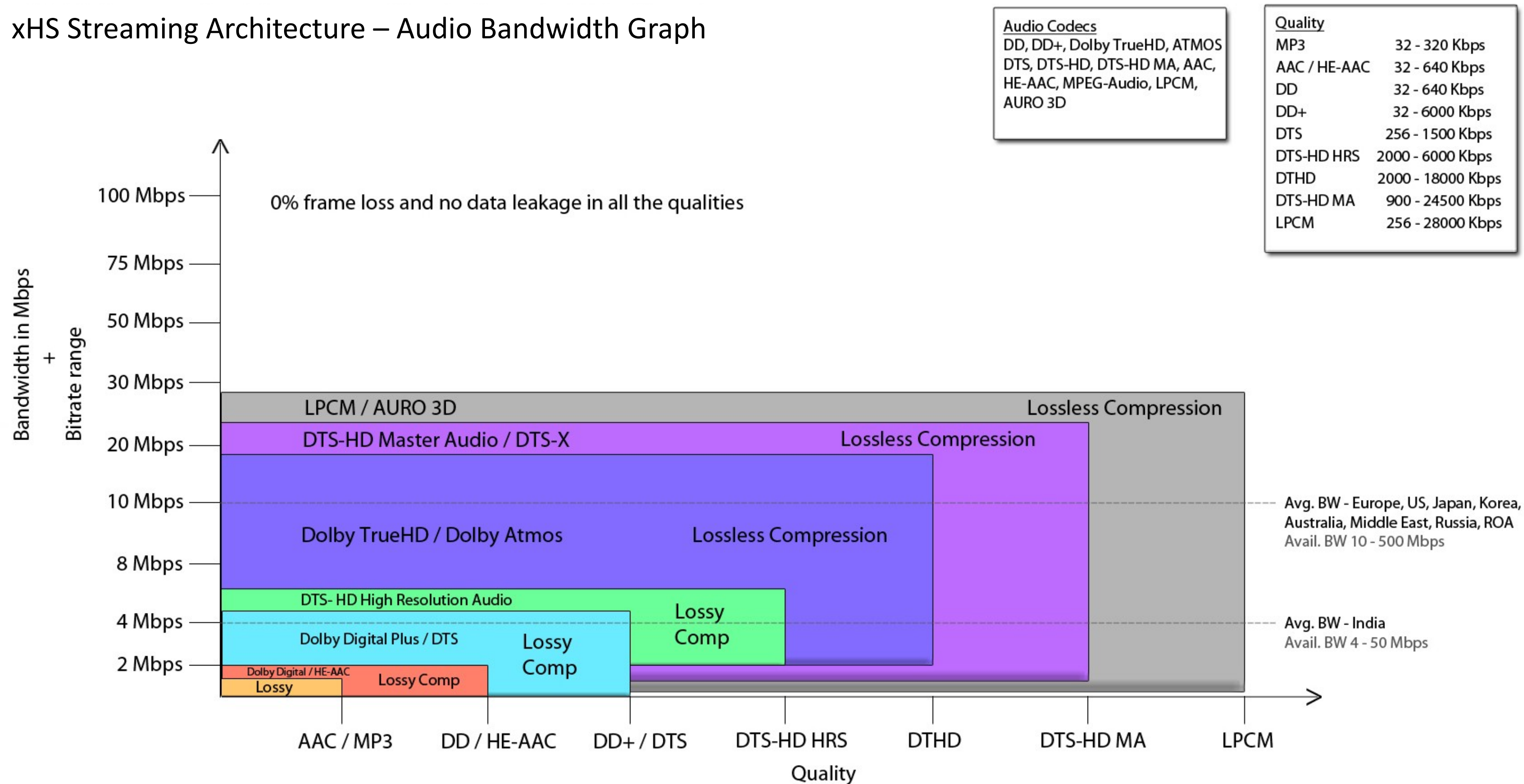




Likes

# New Audio Streaming

xHS Streaming Architecture – Audio Bandwidth Graph







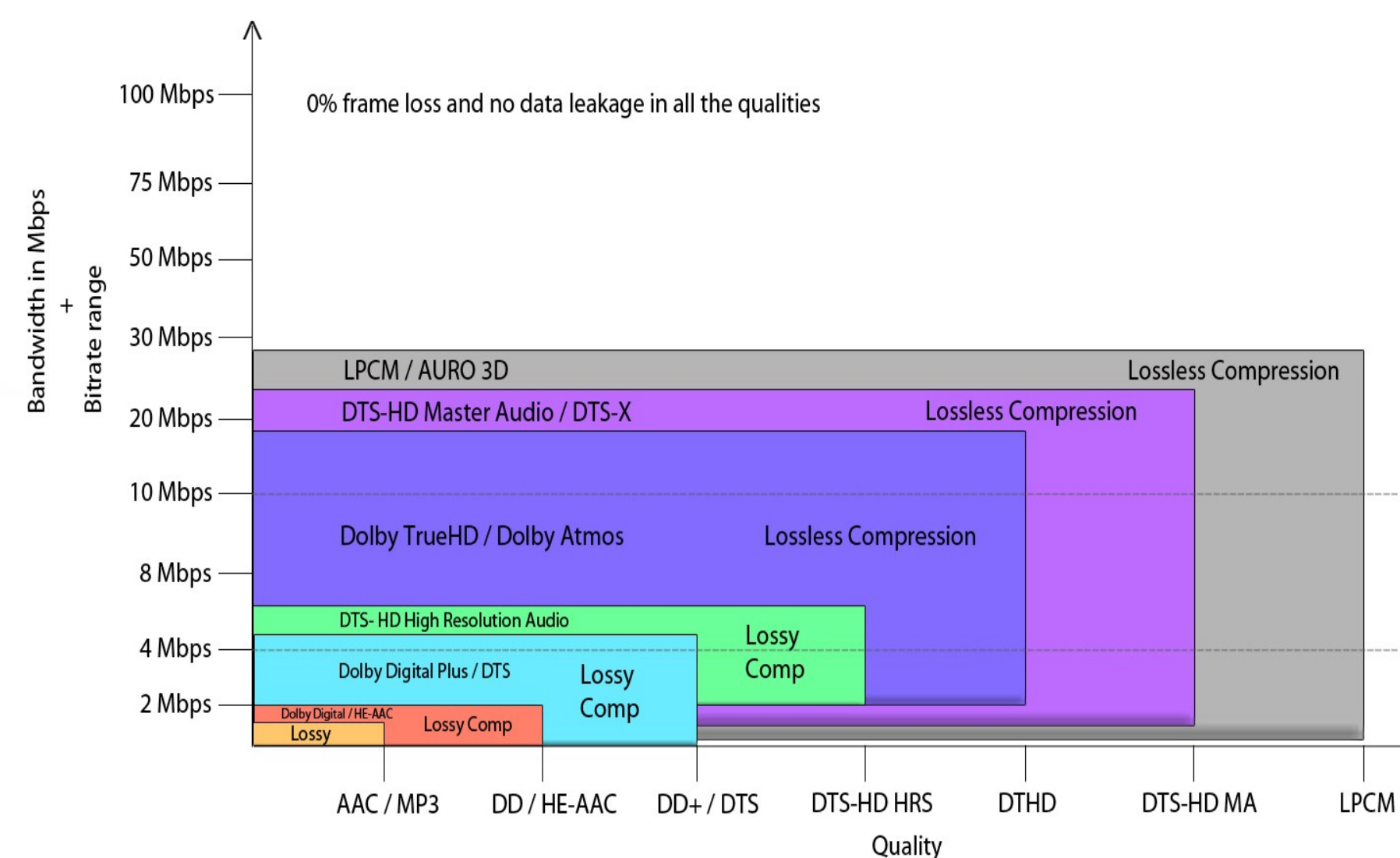
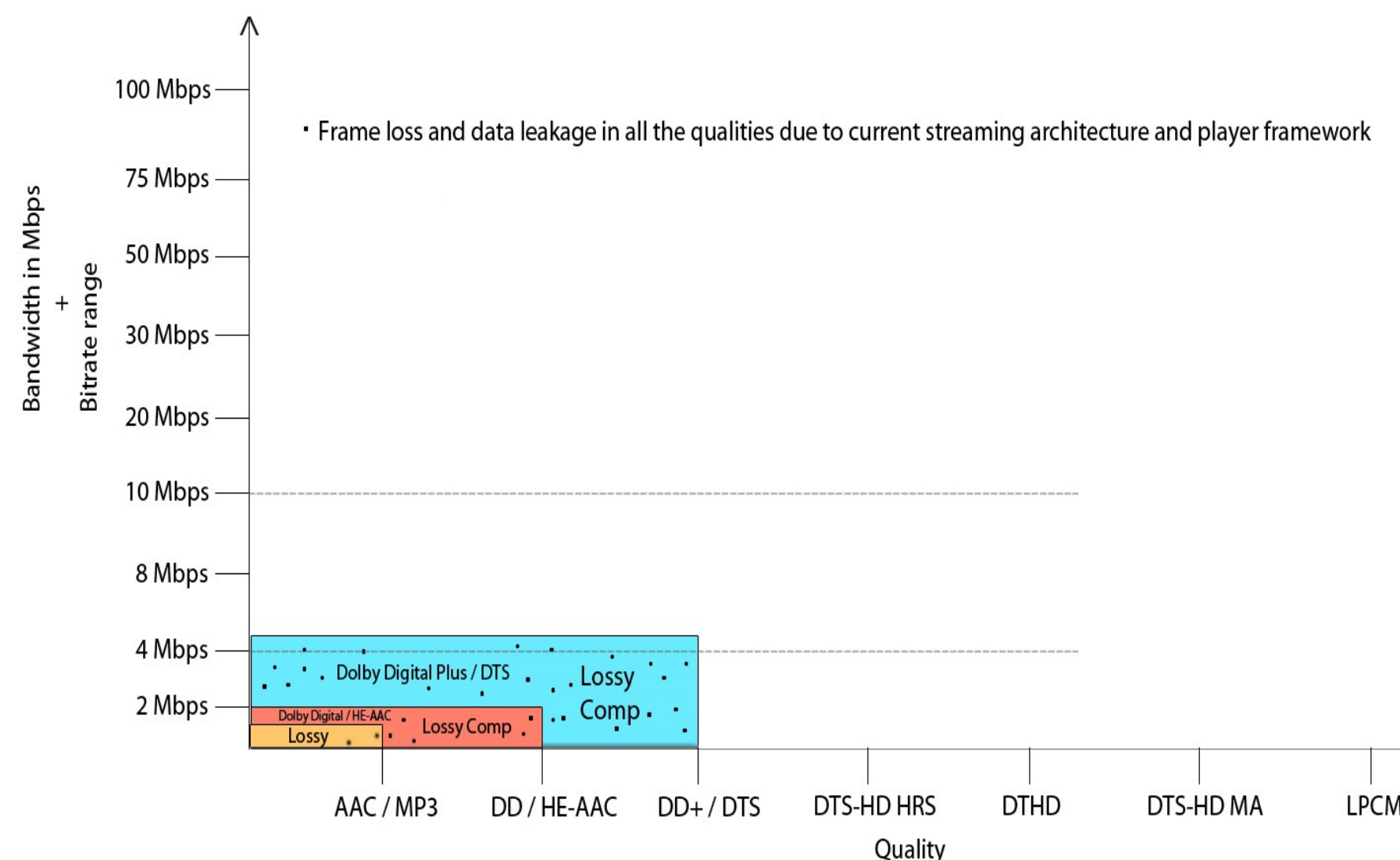
Likes

# Audio Comparison

Container (Brightcove, JWplatform, Ooyala)  
Player Framework (OS, Flash, Silverlight, HTML5)  
Legacy Architecture (HDS, HLS, RTMP, DASH)



Container (TYSO Technology)  
Powerful Player Framework (xSPF™)  
New Streaming Delivery (xHS™)





# Audio Bitrate Comparison

Bitrate can describe the quality of an Audio file

For example, an MP3 audio file that is compressed at 192 Kbps will have a greater dynamic range and may sound slightly more clear than the same file compressed at 128 Kbps

This is because more bits are used to represent the audio data for each second of playback

**MICROSOFT  
Silverlight**

32-768 Kbps



**ADOBE  
Flash**

32-640 Kbps



**APPLE  
Quicktime**

32-640 Kbps



**Our Technology**

32-28500 Kbps





# Software Player Comparison

**TYSO Player is the only software player that can Bitstream HD audio (sends RAW audio data to external receiver)**

Software Player	Microsoft Silverlight	Adobe Flash	Apple Quicktime	TYSO Player
Video Bitrate	Up to <b>10 Mbps</b> (Silverlight for Windows Phone supports up to <b>10 Mbps</b> )	Up to <b>6 Mbps</b> and max up to <b>10 Mbps</b> (Android Player FW) can support up to this level)	Up to <b>15 Mbps</b> (QT for iOS can support up to this level)	Up to <b>500 Mbps</b> and more if device supports
Audio Bitrate	<b>32–768 Kbps</b>	<b>32–640 Kbps</b>	<b>32–640 Kbps</b>	<b>32–28500 Kbps</b>
Audio Sample Rate	<b>Up to 192 KHz</b>	<b>Up to 48 KHz</b>	<b>Up to 192 KHz</b>	<b>Up to 2.8 MHz or more if available</b>
Maximum Audio Channel	<b>8</b>	<b>2</b>	<b>6</b>	<b>450</b>





## Software Player Details

This disruptive technology will impact multiple industries in a way that will fundamentally change the way people create, distribute and consume information. Less than 5% of the world's information is digitised, creating a massive market opportunity.

- ▶ Unique platform agnostic/OS independent single player framework that supports all digital media delivery, requires only one media asset vs 120+ compared to existing platforms.
- ▶ The only framework that can deliver/stream high quality video such as HD, 4K, 360 Video all end-to-end, using a fraction of the bandwidth compared to existing solutions.
- ▶ Built-in security at every layer of the end-to-end system, Built-in DRM and industry standard DRM and DCI compliant.
- ▶ Built-in interactive element for digital media delivery enables full broadcast capability at a very low cost, fast live to air broadcast without the need for resource intensive processing.
- ▶ Revolutionary transmission method delivers 3x the amount of data compared to existing internet technologies, using the same data pipe.
- ▶ No compression of the original signal enables cinematic media experience even on low cost device, requiring up to 70% less processor power.





## Technology Benefits

- > 5x greater quality than HD satellite delivery
- > Fraction of the cost (Up to 50% savings) when compared to existing traditional broadcast models
- > Deliver in camera or master quality at lower cost
- > White label – Publish the software in your own brand, UI design and features powered by our platform
- > Create playlist and route for any number of channels and end points around the globe
- > Targeted ad's based on user house, streets, cities, region, country, etc.
- > No need of satellite investment for end point deliveries (Between reporters to studio or agents and vice-versa)
- > Easy to setup (Within 30 Min)
- > Bring multi-dimensional immersive experience Dolby Atmos at lower cost
- > Advanced industry standard AES 256-bit content encryption with multiple layer shell protection
- > Significant cost savings on satellite and hardware devices for delivery between end points
- > Satisfy your consumers with our rich quality audio and video delivery
- > Save your money and time investing on hardware platforms to increase your video quality
- > Add unlimited different audio tracks for different end points
- > Start new broadcast system with Dolby Atmos / 4K resolution / 3D at lower cost





Likes

# Data Flow Broadcasting



Live Camera

Capture Cards

IP / Multicast

**TYSO Live Publisher**

- Input Encoder / Muxing
- Live Target Ad's
- Live HSD

xHS™, HLS, RTMP, UDP, Unicast, Multicast, Files

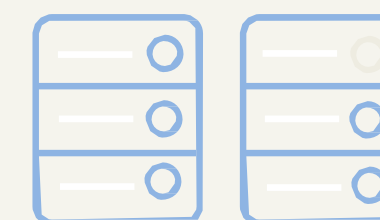
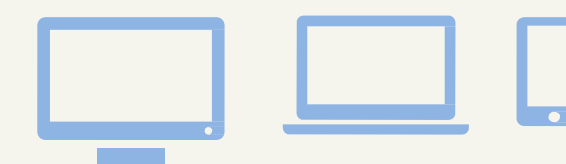


**Broadcast Platform**

- Ingest
- Package / Encryption
- Down Transcoding
- Storage / CDN\*
- Channel Mapping
- Broadcast Manager
- Channel Router
- Asset Manager
- Server Manager
- Player Manager
- Playlist Manager

HTTP / xHS™  
HLS, DASH  
RTMP, UDP

**TYSO**  
**Player xSPF™**



Playout  
Card



Encoder



Satellite Transmission



- Centralized control and monitoring for any number of channels and end points
- Control the sync server and player from web and publisher administration panel
- Ingest from any protocols, hardware devices and local storage files
- Output delivery through xHS, TCP/IP, UDP, RTMP, HLS, DASH, WAN, Unicast / Multicast or any private network
- File formats and Codecs agnostic
- Channel routing with targeted ad's
- Create or update or delete the playlist on the fly
- Update logo, tickers and watermark on the fly
- Apply CG templates (Only for satellite broadcast)
- Create schedule up to 30 days
- Import ad's or channel intro within a show time
- Supports 3D (Side by Side, Top and Bottom and Anaglyph)
- Adjust audio and video settings from the studio administration
- Supports unlimited number of audio tracks for a show
- Assign audio track for each end point from single container
- Cloud and local Playout to external device [Decklink, StreamLabs, Matrox, AJA]
- Shell protection layer for copy protection with 256-bit AES encryption and intelligent unified key system
- Delivers in highly secured VCC (Virtual Cinema Coding) container
- Ready for 4K broadcast
- No re-encoding or re-compression or re-sampling jobs thus it maintains the studio quality
- Downgrade quality for low bandwidth delivery
- Automatic console restart and resume the playout in case of application or server crash.
- Supports any audio and video bitrate
- Supports any audio bit depth
- Supports any audio sampling rate up to 2.8 MHz
- Supports higher frame rate video up to 240 FPS (HFR)
- Local CDN server - Saves bandwidth for repeated shows and commercials





Likes

## UHD Streaming status

**Competitors:**  
Google, Microsoft, Apple, Adobe

**TYSO Technology**

Category	UHD-1 Phase 1	UHD-1 Phase 2	UHD-2
Deployment	2016	2018	2020+
Resolution	3840 x 2160	3840 x 2160	7680 x 4320
Video Format	4:2:0 10 bits	4:2:0 10/12 bits	4:2:0/4:2:2/4:4:4:4 10/12/16 bits
Frame Rate	50/60 Hz	100/120 Hz	100/120 Hz
Video Codec	HEVC Main 10	HEVC Main 10	TBD
Color Space	Rec 709	Rec 709 & 2020	Rec 2020
Dynamic Range	HDR Preferred	HDR Mandatory	HDR Mandatory
Audio Format	5.1	Beyond 5.1	Object Based
Audio Codec	Open	TBD	Next Gen Audio Codec

Source: Thierry Fautier (Harmonic)





Likes

## Technical Specifications

Supported Video Codes	Any
Supported Audio Codes	Any (Up to Atmos, Auro 3D, DTS-X, DSD)
Supported File Formats	Any
Subtitle Formats	SRT, PGS
Streaming Format	Any
Ingest Protocols	xHS, UDP Multicast, Unicast, TCP/IP, HLS, RTMP, RTP
Hardware Ingest	Any capture cards and camera
Output Delivery Model	xHS, HLS, RTMP, UDP, TCP/IP, DASH
Video Bitrate Range	Virtually Unlimited
Audio Bitrate Range	Up to 28.7 Mbps
Audio Sample Rate	44 KHz – 2.8 MHz
Frame rate	Up to 240 FPS

Color Modes	PAL, NTSC, NTSC-SECAM
Scan Type	Progressive / Interlaced
Supported Resolution	Up to 8K
Maximum No. of Tracks	Unlimited
3D Formats	Anaglyph (All Colours), Side-By-Side, Top and Bottom, Interlaced
2D to 3D Conversion	YES
Real 3D	YES
Bitstream HD Audio	YES (HDMI, Optical / Coaxial, RJ-45)
Content Encryption	Industry standard AES-256 or 512 bit encryption
Content Protection	Shell Protection
Supported Platforms	Any
Supported Player	xSPF™ Player Framework
Minimum Bandwidth Speed	1-2 Mbps (downgrade qualities SD-HD)





Likes

## Overview

3D

LOSSLESS  
HD  
SOUND  
TrueHD



4K

XHS™  
WYUIWYG



WYUIWYG



DXVA



XSPF™  
WYUIWYG



AURO 3D  
AUDIO





## ▶ Currently:

- ❑ The TYSO platform has a complete workflow solution to deliver VOD
- ❑ The VOD platform is capable of ingesting any content and any file format and deliver it at studio quality, with 4 layer shell protection which eliminates piracy, illegal downloads or copying of media files

## ▶ Next Phase before go to market:

Complete Content Management to allow customers to stream content to multiple viewers (Broadcast)  
Increase the platform to broadcast from a professional video camera to any device  
Add capability to broadcast from mobile





### ▶ **Large Content Management Platforms**

- tie-Up with Akamai, Limelight and other Digital Content Delivery platforms

### ▶ **Embedding PlayerFramework**

- using API to allow developers to create applications that deliver true immersive experience

### ▶ **Direct OTT platform for delivery and revenue generation**

- generate revenue by allowing creators to earn from viewings and advertisements

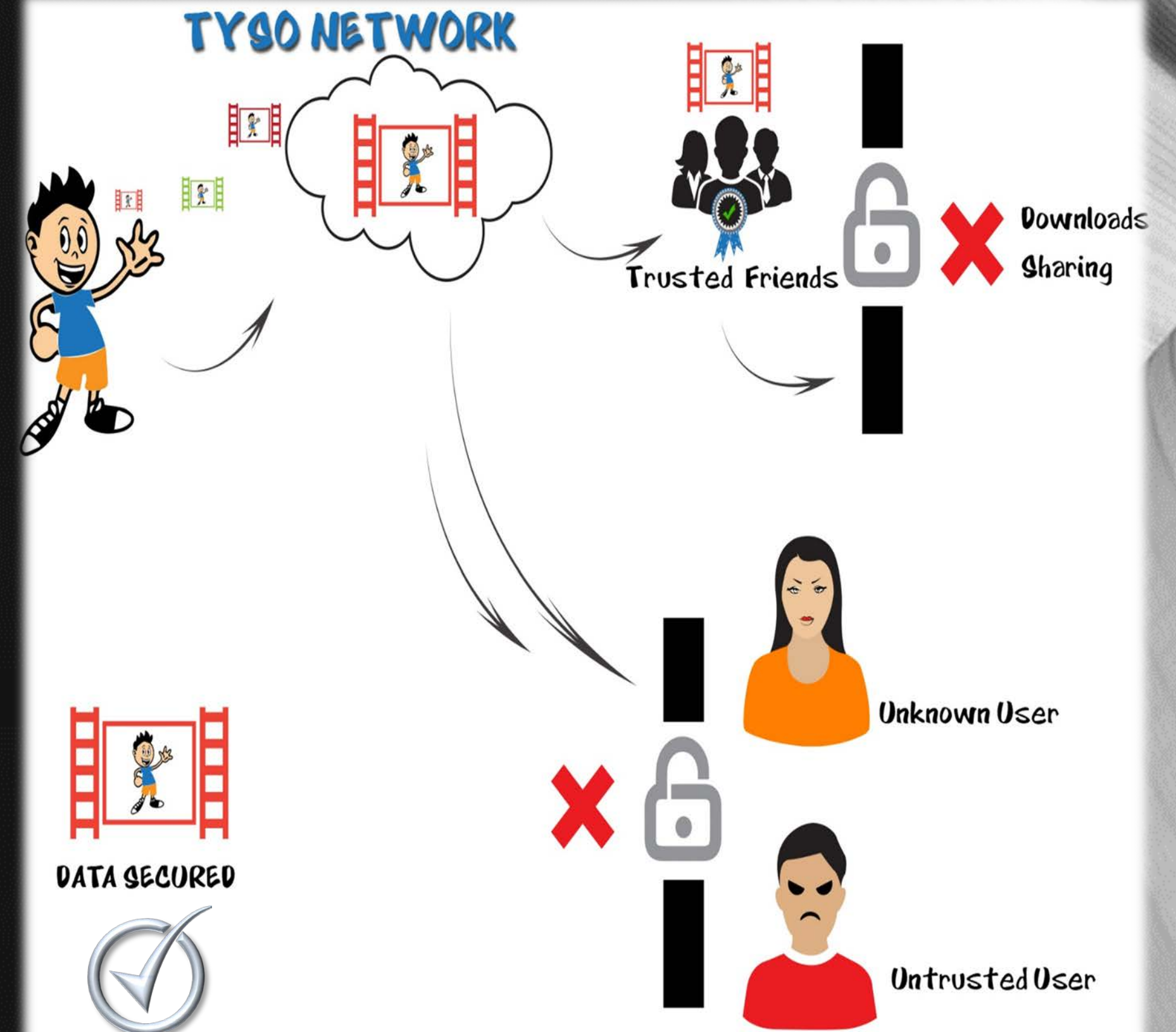
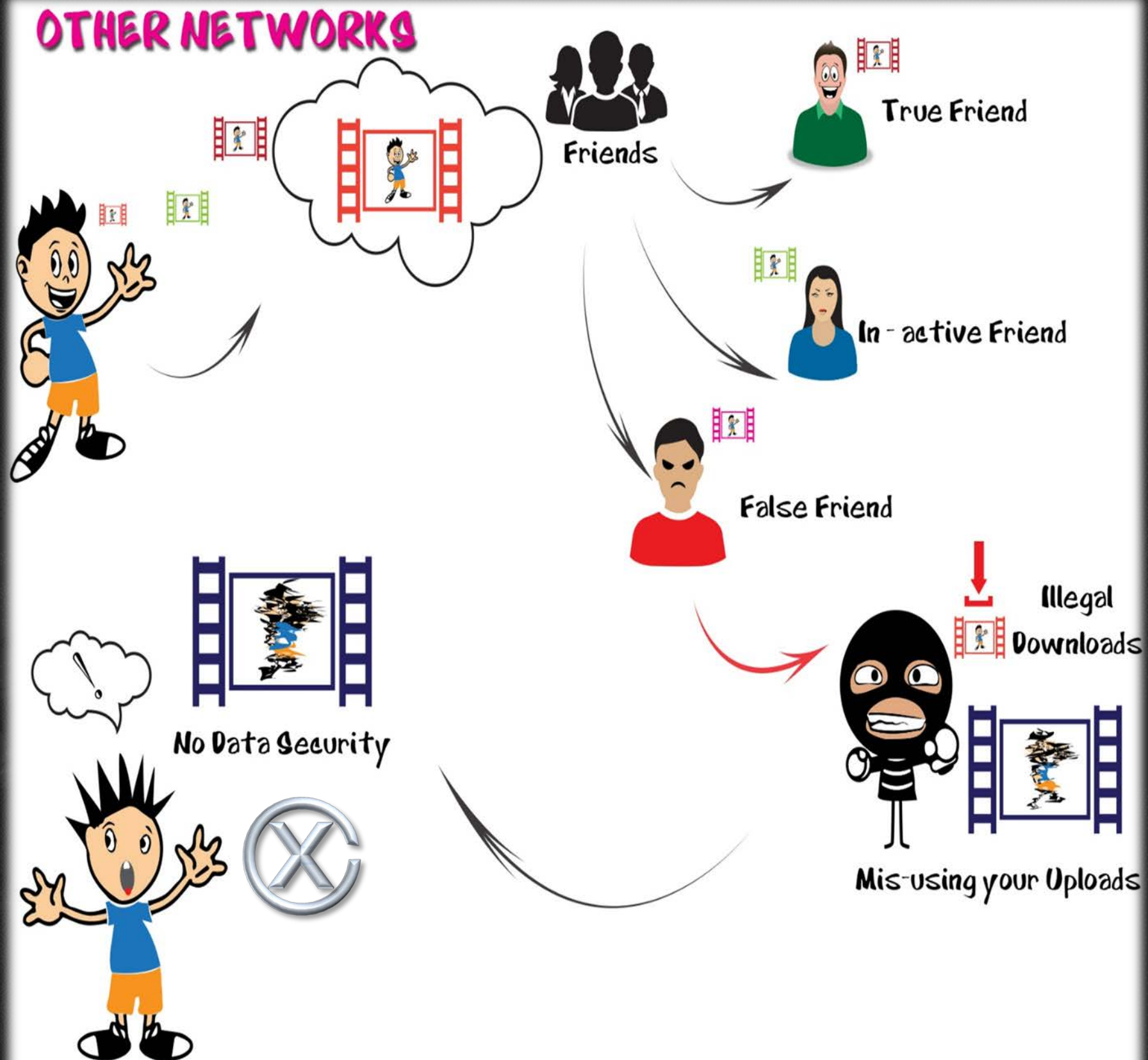
### ▶ **Deliver Solutions to fit multiple markets (Healthcare, Education, etc)**





Likes

# Tyso Network compared to other Networks

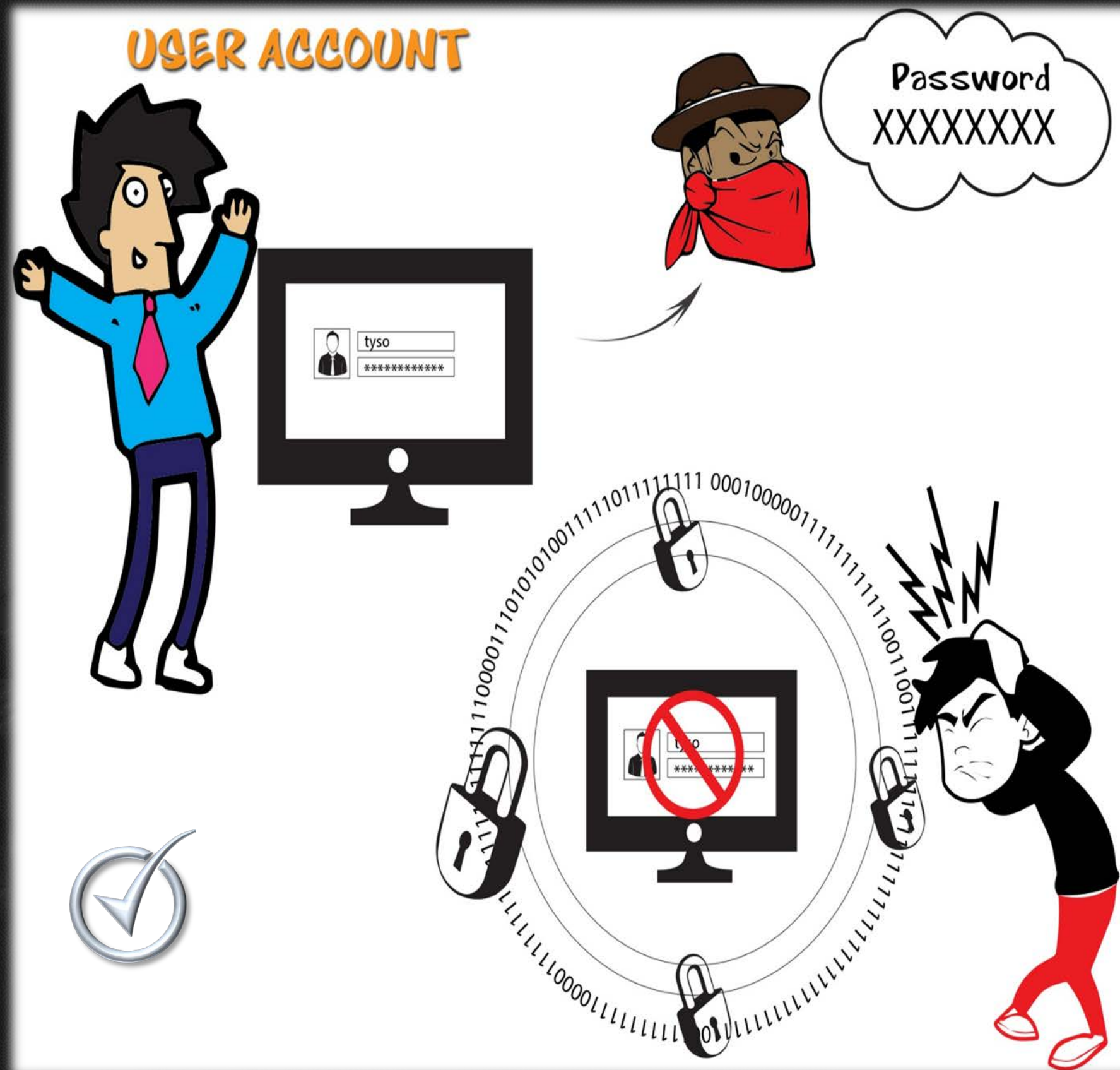






Likes

## User account protection



protection

☒ Lock your private data



New Password

.....

Confirm Password

.....

Protect by lock

Note Password must be between 6 and 20 characters in length.





# General protection warning



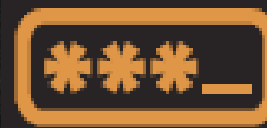
Use **STRONG**, unique passwords for every account. Use a password **MANAGER** to **STORE** them securely.



Surf and email **WISELY**. Never click on links or attachments from **UNKNOWN** or **UNTRUSTWORTHY** sources.



**NEVER** use **OPEN** Wi-Fi networks without automatically establishing a **SECURE** VPN connection.



**RESIST** “conveniences” such as using Facebook credentials to **SIGN** into other websites or **MEMORISING** passwords on websites **LOGIN** pages.



Keep operating system software **UPDATED**.



**NEVER** share company information using **UNAPPROVED** web applications (such as dropbox)



**UPDATE** anti-virus, anti-malware, anti-spyware, and firewall software **REGULARLY** as even these can be vectors for **ATTACKING** your systems. Learn to differentiate between legitimate and **FAKE** anti-virus messages.



Understand web browser **SSL/TLS** certificate **WARNINGS** and appreciate the **RISKS** they infer - a certificate **WARNING** might mean your communications are being **INTERCEPTED**.

Source: F5 Networks, Inc. F5 Labs. ‘Threat Intelligence’





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